

## **Historic, Archive Document**

Do not assume content reflects current scientific knowledge, policies, or practices.



# GLEANINGS IN BEE CULTURE

A JOURNAL DEVOTED  
TO BEES,  
AND HONEY,  
AND HOME  
INTERESTS.

ILLUSTRATED  
SEMI-MONTHLY

Published by THE A. I. ROOY CO.  
\$1.00 PER YEAR MEDINA, OHIO.

Vol. XXIII.

AUG. 15, 1895.

No. 16.

## STRAY STRAWS

FROM DR. C. C. MILLER.

I'M FOR THE UNION of the Union with the North American. [That's right.—ED.]

THE KANUCKS seem to be getting things in good shape for the Toronto convention.

CRIMSON CLOVER when in bloom is pretty enough to afford a bed of it room in a flower-garden.

THE *Revue Internationale* contains an account of a successful case of transferring bees in midwinter.

I'VE SEEN TWO BEES working on sweet clover, with pollen on their legs. It didn't look brown, like white-clover pollen, but was a sort of faded yellow.

"THE TALENT of success is nothing more than doing what you can do well, and doing well whatever you do—without a thought of fame."—Longfellow.

THE PLAN for determining adulteration in wax by means of carbonate of soda is denounced in *Revue* as worthless. [What is the plan, in brief? I'd like to try it.—ED.]

A REPORT on p. 596 says bees in Florida have made two tons of honey. If one colony has done that, it's big; but if it means all the bees in the State, it's rather poor.

IF CRIMSON CLOVER will not stand the winter so far north as this, perhaps a spring sowing would mature a crop of seed to pay expense and give a crop of honey extra.

THAT'S A GOOD IDEA of Wm. Russell, p. 599. Make the annual payment to the North American 25 cts., and then give full value for that money to all members who stay at home. [I agree with you.—ED.]

THE *Canadian B. J.* says you can extract dark and light honey separately, even if in the same comb. Hold up to the light; uncap and extract the light patches, then the dark. I should think that would work nicely if too much brood has not been raised in the comb.

IT SEEMS that we can count 5000 bees in a pound when not loaded, and 3000 when loaded. That means a bee carries a load equal to two-thirds of its own weight. [These would be fairly correct for round numbers.—ED.]

A HINT is hinted at in *Progressive*, that I'd better be giving a little grain instead of so much straw. Now look here; the sign-board over this shanty says "straw;" and when you make application here, straw's what you'll get.

DURING LINDEN BLOOM I watched bees on trees close by, and never saw but two bees during the season gathering pollen. I always supposed they got much pollen from linden. Can it be that they gather less pollen from trees close by?

BETTER PUT a couple more ciphers in that first column, p. 585, and make 7 or 8 lbs. of bees count 21,000 or 24,000, instead of one-tenth that many. [Dear me! how could I have let such a mistake pass? We'll let this serve as a correction.—ED.]

STRICTLY FANCY new comb honey is quoted in the honey column, page 580, at 12 and 13; and one firm says, "We anticipate a price of 14 to 15." I anticipate they'll anticipate a higher price than that before they're flooded with consignments this year.

"MUTUAL ADMIRATION" societies are getting some hard knocks nowadays. For one, I'm a hearty believer in such societies. If I can't find a man in this world who has something in him to admire, and if no one in all this world can find a single thing in me to admire, then I want to get out of this world right away, quick.

DID YOU EVER know a queen to lay an egg in a cell containing pollen in a normal colony? I have seen such a case, and I wonder whether such eggs hatch out. [I have known of drone-laying queens, and laying (or fertile) workers laying on top of pollen, but never a *normal* queen that laid eggs that would produce worker brood.—ED.]

THE PROBLEM of controlling fertilization of queens seems to have no one working on it nowadays. Can't some one dream out a solution? So far the solutions seem to have been nothing



but dreams, like the one sent out, under government authority, as a positive success. [There is a method, and it is practical. See article by James Wood, in this issue.—Ed.]

No WONDER that poor fellow at the head of "Reports Discouraging," p. 596, looks discouraged when you set him on his head. [You were sent the first sheet off the press. The mistake was rectified before many had been run off. That page was all made over after its first reading, and the heading was misplaced by accident.—Ed.]

THE VAST DISTANCES of this country have always been given as the reason for the small membership of the N. A. B. K. A. Don't be fooled by that any longer. It has to do with the attendance but not with the membership. If we were as bright as the stolid Germans we could get members to belong, even if they never attended. [You're right.—Ed.]

HOW MANY BEES in a strong colony? J. L. Hyde, p. 585, sets it at 25,000; but surely that's very low. A 9-lb. swarm contains 27,000; and before the colony swarmed it contained many more. Years ago Donhoff figured that 63,000 was the maximum number in one colony. I suspect it may go beyond that; but I don't know. [I think Hyde is nearer right, because his weights agree with what I secured a number of years ago. Estimates are liable to be too high, any way.—Ed.]

OUR AUGITE STOVE-MATS are losing their power, after long and faithful service. It seems ridiculous to think they can be replaced for five cents each; but they would be replaced, even if they cost ten times that. If your wife has none, surprise her by your thoughtfulness in getting something that will save many an hour of watching and stirring over a hot stove. Tell her she can put a dish of milk or oatmeal on a hot fire for an hour without burning, and she'll not believe you till she tries it.

PARALYSIS. Here's a cure given by James Carmac, in *Progressive*: "Remove several frames from the center of the hive, with the one with the queen (if she is valuable), as a drop kills as if scorched with a hot iron. Sprinkle the bottom-board with a tablespoonful of the mixture—equal parts of benzine and turpentine—replace the frames, and close the hive." After this treatment, used three times, his bees recovered; but he is wise enough not to feel sure that it was the treatment that cured. [Bee-paralysis so often goes off of itself without treatment that I don't believe the benzine mixture had any thing to do with the matter.—Ed.]

A FRIEND is considering the advisability of using chemical fertilizers for strawberry-beds in preference to barnyard manure at 75 cents a load on the ground. He thinks freedom from weed-seeds may make up for difference in cost.

What does A. I. think? [This has often been suggested; and in the East, on sandy soils, I am told they raise nice strawberries by the aid of chemical fertilizers. In our locality, however, I have never been able to find any chemical fertilizer at any price that would take the place of stable manure at all on strawberries. To tell the truth, they hardly show any results. Of course, guano tells every time; but this can not be called a chemical fertilizer. Application of ashes has also given some excellent results, after having manured the ground heavily with stable manure previously.—A. I. R.]



### TEMPERAMENT OF BEES.

HOW FAR SHOULD WE TAKE IT INTO ACCOUNT?

By S. E. Miller.

Do we not often make mistakes in managing our bees, in thinking that one colony should act and do just like another colony under the same conditions? Do we make due allowance for the difference in disposition or temperament of our numerous colonies? A colony of bees must, to a certain extent, be considered as an individual so far as the mind—or, perhaps, more properly, their instinct—goes. We all know that a colony works under a single impulse—that is, what is the motive of a few is the motive of the entire colony; so we must consider a colony as having a single mind. All work together for the common good of the colony. Certainly, when a bee darts from the hive that we are working over, and dips us over the eye, we are glad that the entire colony is not seized with the same impulse at the same moment; nevertheless, there is a controlling passion which seems to have the same influence over the entire colony at the same time.

Let us look for a moment at the higher order of animals and see the difference in dispositions. Take, for an example, man. Among thousands you will not find two exactly alike in temperament. Then take horses, with which some of us are accustomed to work almost every day. One will be wild, vicious, and hard to manage; while another, having the same treatment, may be docile and gentle.

Let us go still lower in the scale of the animal kingdom, and notice a flock of poultry. Here is a brood of fowls that were hatched out in the field or forest. One hen laid the eggs, hatched them, and reared the chicks up until they were large enough to scratch for themselves. We should suppose that this brood would be very much alike in disposition when they arrive at maturity; but such is not the case. Some are apt to be shy while others are tame; and in

many ways we may notice a variation in their dispositions.

The above may seem foreign to bees; but I have alluded to it to show that there is a variation in temperament among the same species in the animal kingdom.

Let us now go to the apiary. There are two colonies, apparently just alike. We know they are very nearly alike so far as strength and the amount of stores they have is concerned; and the one colony might be expected to do just as the other does, yet the one colony is storing honey quite rapidly while the other one is doing very little. Here are two colonies very much alike, that we gave supers to at the same time. The one has the super half filled, and is working nicely, while the other has not even begun. Here is a colony that builds very straight even combs, while some of the others build crooked, bulged, and uneven combs, although their conditions are very much alike. Over there is a colony that will not accept a queen, but will kill queens as fast as you introduce them, and insist upon rearing one of their own so long as there is a shadow of a chance—that is, as long as they have any unsealed larvæ to rear one from. No matter if the larva is several days too old, they insist on having one of their own rearing. Their nearest neighbor may be a colony that will accept a queen by merely taking away their own and giving them another, say twenty-four hours later. One colony will cast a swarm before the hive is more than two-thirds full of brood and honey, while others will wait several days after their hive is chock full.

To what, then, can we attribute this difference? Where all are in the same apiary it can not be laid at the door of location, for the resources of one colony are available alike to all that are of sufficient strength to send a full working force to the field.

We are forced to the conclusion that there is a vast difference in the dispositions of different colonies, or, perhaps, we might say, a particular individuality peculiar to each colony. When we consider, then, the different climates to which bees are subjected, the difference in the flora, and the difference in the time of year that the main honey crop is gathered in different parts of the world, is it to be wondered at that all bees in all places do not act alike? Is it surprising that a hive and a particular system of management that work well in one part of the country are failures in another and widely separated location? Is it strange that we have not, can not at present, and, perhaps, never will, all agree on any particular size or shape of hive or any particular system of management?

I could continue further in this line; but as my article is becoming long I will try to come to the point which I started to bring out. Can we not, perhaps by studying the nature and particular characteristics of each colony, be enabled to manage them with greater success and

profit? Would it not often be better to yield to the particular whims of a colony, or at least compromise matters, than to undertake to make them do altogether according to our ways of thinking, when our way may be in direct opposition to what is the height of their ambition or desire?

Probably there are few if any bee-keepers, who use modern hives, that have not at some time tried to prevent a colony from swarming, and by so doing caused them to sulk until the honey-harvest was past, and thus obtained nothing from a colony that, by proper management (that is, by humoring them in their desire to multiply, and replenish the earth), might have been induced to store considerable surplus honey.

In my mind there is no doubt that some colonies will build comb much more readily than others. To put such at storing honey to be extracted, and those that are disinclined to build comb at work in the sections, would certainly be a mistake; and yet how many of us pay any attention to this in putting on the surplus receptacles?

The above is a subject which I do not recollect having seen discussed in any of the bee-papers, and I feel that I have made only a feeble effort; but if it should call forth thought and advice from some of the leading lights in bee culture, it may be of use to the fraternity.

Bluffton, Mo.

[This article is clear and logical, and the writer draws some very practical conclusions. One in particular is, yielding to the whims of particular colonies.—ED.]

---

### WHY SHOULD THERE BE SUCH A VARIETY OF OPINIONS?

BEES ON STRAWBERRY-BLOSSOMS; HAVE THEY BEEN KNOWN TO INJURE THE FRUIT ITSELF? HONEY-DEW AS A WINTER FEED FOR OUT-DOORS AND INDOORS, AND THE DIFFERENCE IN RESULTS.

By W. S. Fultz.

In the controversy just now going on in the various bee and agricultural journals, it is asserted by some that bees do not work on strawberries while in bloom, and by others that they do. While I never knew the bees to work on strawberry bloom at any time during 22 years' experience as a fruit-grower, yet I am not prepared to assert that they do not so work. In my location bees usually find honey from other sources just at the time strawberries are in bloom; and as there is little or no honey in strawberry bloom they are not going to leave better pasture to forage on that which is poorer.

In other localities it is probable that, just at the time the strawberries are blooming, there is no other source from which the bees can get a living, and they then resort to the strawberries. When this country was first settled, and



the Mormons were at Nauvoo, Ill., they sent some of their elders to preach, and set stakes in this part of Zion, and many of these elders were very illiterate, considering the work they were expected to do. On one occasion two of them had an appointment to preach in a schoolhouse near here; and when about to announce his text, the one who was to preach stated that he had forgotten to bring his Bible, but that his text would be found in the book of Exodus, and read like this: "And Bezaleel made the ark."

"Hold on!" exclaimed the other elder, "it was Noah who built the ark; everybody knows that."

"Brother," said the first elder, "I believe I know what I am about, and I say it was Bezaleel who made the ark; and if some good brother or sister has a Bible here we will soon settle our dispute."

A Bible was procured from a house near by, and the first elder turned to the 37th chapter of Exodus, and read: "And Bezaleel made the ark of shittim wood," etc. Explanations were in order, and it was apparent that the two elders had different arks in their minds, and that a little explanation by elder No. 1 would have made a controversy impossible. If we were to take a wider view of many of the disputes that arise we should often see that there is really no occasion for a dispute.

In the *American Bee Journal* for July 18, Mr. J. A. Nash, of Monroe, Ia., gives an account of getting a great deal of honey-dew honey a few years ago, and he blames that honey for the destruction of his bees during the following winter and spring. As all bee-keepers in this part of Iowa had an experience with that kind of honey at the time, and as some of us wintered our bees successfully on it, I felt inclined to dispute his statement that it was the honey-dew that was so detrimental to his bees; but when I come to consider some of the facts I am inclined to think he is right. He wintered his bees in a cellar, and I wintered mine in chaff hives on their summer stands; and it is possible that my bees were enabled to take a purifying flight during the winter, without being unnecessarily disturbed, while his were not, and that may have made all the difference between success and failure.

During the fall of 1871 our bees here gathered much of that honey-dew honey, and at that time we knew nothing of chaff hives, and resorted to cellar wintering, and almost all of the bees in the country died.

If at any time before our strawberries ripened this year any one had asserted that bees worked on ripe strawberries I should have said that it was a mistake, as I had never, in my long experience as a fruit grower, seen a single bee on a ripe strawberry; but this year my bees attacked what few strawberries had escaped the frost of May 13th, with a fury that was ir-

resistible. As only myself and boys, who were used to handling bees, did the picking, they did not drive us out of the patch as Mr. Wm. C. Ashby says of himself in the *American Bee Journal*; but they did ruin fully half of the crop; and as berries were scarce and high-priced, the loss was a serious one. My loss by bees working on strawberries and raspberries this year will aggregate more than all the bees and honey that I have sold from an average of 30 stands of bees in ten years; and yet there are plenty of writers on bee culture who will assert that bees never do any damage to fruit of any kind.

Bees, like human beings, will try to live on any thing that gives a promise of appeasing hunger when starvation drives them to it; and bee-keepers certainly owe it to horticulturists that they feed their bees and keep them at home at times when starvation drives them to destroy fruit.

When picking strawberries and raspberries I noticed that, during the morning and until about 9 o'clock, when the bees were knocked off the berries they were quite lively, and either flew away or else to another berry; but after about 9 o'clock, if knocked off they fell to the ground and acted as if intoxicated. Did the berry-juice have that effect on them? No berry-juice, so far as I could ascertain, was carried to the hives.

Our blackberries were a complete failure. From two acres I did not get a single box. The drouth used up what the frost did not kill. This week we have had five inches of rainfall, and the drouth is broken.

Muscataine, Ia., July 20.

[I think we can not question that the bees do at times work on strawberry-blossoms; neither can we question that they may, in very rare instances, attack the fruit itself while on the vines. I do not remember to have read a report of their having done so before; and I should say the case you mention is most unusual; still, we must not conceal the facts. I don't have much sympathy with that class of bee-keepers and bee-journal editors who insist, in spite of all the facts to the contrary, that bees will not attack ripe fruit. Careful and conscientious bee-keepers who observe matters closely know that they do at times when there is a great dearth of nectar from natural sources. The cases, however, are not frequent; but to deny them all is to do more harm than good.—ED.]

#### NO HONEY AT DR. MILLER'S.

THE QUESTION OF BROOD-CHAMBERS, LARGE OR SMALL, DISCUSSED.

By Emma Wilson.

We are disappointed in more ways than one in not having any honey crop this year, as there were so many experiments that we wanted to try. They had to be postponed last year on account of the failure, and it is rather discouraging to know that they will have to go

another year for the same reason. One of the things we were very anxious to decide upon was the size of hive we want. We were trying some with 11 frames, some with half-stories under the eight-frame hives, and some with two full stories, or 16 frames. For myself I feel pretty sure I want the frames all in one story. Two stories makes too much lifting. I don't know that Dr. Miller agrees with me in this.

I am afraid the eight-frame hive is not large enough; in fact, I'm sure eight frames are not enough for some of our colonies in the spring. As I said in my last article, some of our colonies had as many as eleven frames of brood. But I believe eight frames are enough during the honey-harvest. I should dreadfully hate to give up the eight-frame hive. It is nice to handle, and makes the hauling to out-apiaries far easier. But then, when I think of the big crops of honey we used to have with the larger hive, I wonder if it's the eight-frame hive that's the trouble, or have the seasons changed? and are we never to have any more honey crops? I do not think the size of hive has made any difference with our crop this year or last, for there has been no honey to be had, either for large or small colonies.

We certainly did not have the swarming with the larger hives that we have had with the eight-frame hives. But there may be another reason for that. We always, during the honey-harvest, left a small opening at the back of the hive, for upward ventilation, and a current of air was constantly passing through the hive, that may have helped a good deal to prevent swarming. We have not been giving this ventilation since we have had the eight-frame hive in use. The bees will not finish up the sections quite so quickly at the back end when the ventilation is given, and for that reason we have discarded it. But I'm not sure but it's a good thing to have the ventilation nevertheless.

For the last two or three years we have been placing small blocks at the corners under some of our hives, raising them  $\frac{1}{8}$  of an inch from the bottom-board, leaving an opening all round, and I believe it's a good thing. It gives them more air, and it may help to prevent swarming—not that we're troubled with swarms at present. We've not had any this year, and are not likely to have. I'm not fond of swarming bees, but I would even put up with the swarms if the honey would only accompany them.

There is one thing I don't like about our latest eight-frame hives, and that is the dummy. It is made of two pieces, and some of them warp and bulge at the center. Dr. Miller says the trouble is they are made of basswood.

Oh, yes! another thing I don't like. The hive is not wide enough to suit me. I want a little more room to get the dummy out. The way I generally do now is to pry out a frame first and then remove the dummy, or else leave the dummy in. I am speaking now of the hives with

the first Hoffman frames with the wide ends to the top-bars and the end-bars with square edges. These have been in use some time, and the bee-glue has accumulated about a sixteenth of an inch. Of course, that makes about half an inch less room in the hive. We ordered fifty hives last year having narrow ends to top-bars and V edges to end-bars. They are all made with frames wired ready for use, but we have not as yet succeeded in getting bees into many of them. They may be better. We have not had much chance to try them.

Marengo, Ill.

[You would not have trouble with the dummies providing you had in use the latest Hoffman frames. Those that you refer to were the very first we put out, several years ago, and we sold only a very few of them, as we saw at once it would be necessary to change them. Sometimes I remove the dummy first, and sometimes the brood-frame, but more often the former. The dummy—or, as we call it, the division-board, is now made so as to have a projection that facilitates very greatly its removal. I very often pry over the entire set of frames clear to one side. This gives ample room for the removal of the division-board; then I split the brood-nest perpendicularly at any point desired, and remove a frame if I wish to.—ED.]

### RAMBLE 138.

IN THE GOLD-MINES.

By Rambler.



ESIDES the bee-keeping profession, Mr. Schaeffle is a mining expert, and he bears the U. S. Government's say-so as proof of it. He has had much experience in this science in Colorado as well as in California. He has traveled over a good share of Northern California in the mining interests; and, always having an eye open to the bee-keeping interests, he can give much interesting information in relation to the honey-flora of this portion of the State. He claims that the counties of Lassen, Modoc, and Shasta, are practically undeveloped so far as bee-keeping is concerned; and, owing to the large area covered with sage, the quality and yields would equal the more favored South. Thus far, however, the cost of transportation from those wilds would hardly warrant trying the experiment of bee culture on a large scale.

In the early mining days, Murphy and all of these towns in Calaveras Co. were surrounded by placer diggings. The surface has been torn and upheaved with the pick and the spade, and the best of the soil has been sent down stream with the washings, while millions of dollars in golden nuggets have been taken from the pan and the rocker. In some places the surface of the country is honeycombed with



miners' claims; and where they sank their shafts (or we might call them wells) to bed-rock, as a miners' claim is 16 feet square, these holes became numerous. But the palmy mining days have become a story of the past; and only debris, and holes caved in and hidden with brush show where the men toiled for gold. Now and then an old miner strikes a little "pay dirt," as he terms it, and, by the side of a little stream of water, works out with his rocker a paltry two bits a day, or even less.

Quartz-mining has taken the place of all other methods; and to even start one of these mines requires as much of a fortune as would satisfy an ordinary bee-keeper. The largest of these mines are located in Angels. The Utica mine gives employment to some 600 men, taking out \$250,000 per month. The mill operates 180 stamps; each stamp weighs 850 lbs.; and

But another sound comes to the ears. The poor sewing-woman in the garret, the laboring man on the street, raise the earnest cry, "Silver, silver; good silver." The farmer and the bee-keeper sing the refrain, "Root of good, root of good; silver, silver." The church-bells chime the silvery tones, and a day of rest, day of rest. The silver shout grows louder; the relentless rattle of gold for the rich has its day; the ballot brings peace and good will, and the thundering stamps now merrily shout, "Silver and gold! silver and gold!"

Mr. Schaeffle touched me on the shoulder, and the dream vanished. We went forward with our inspection of the mill; but "silver and gold, a day of rest, peace and good will," echo in my ears even unto this day.

The gold is liberated by crushing, and is caught in a quicksilver battery. This yields



A QUARTZ MINE AND MINERS.

its fall of five inches, to crush the ore, is about every two seconds. The reader may judge that the 180 stamps, all in one building, make a deafening roar—the earth trembles. These stamps continue their harsh music for 365 days in the year.

Amid the roar of the mill I fell into a sort of trance; and as I listened to the water gurgling under the stamps it seemed to say, "No Sunday here, no Sunday here." The ore, as it rattled continuously toward the stamp, said, "Root of evil, root of evil." The stamp harshly answered, "It is gold, it is gold." Out of the din and thunder of the stamp-mill the mind flashes to the far-off cities, and finds a connecting link in the soulless railroad corporations, and the din of railroad trains answers to the mine, "No Sunday here, no Sunday here." The rattle of traffic on the street echoes "Root of evil, root of evil." In the stock exchange the frenzied calls of the gamblers, the raps of the gavel, and the madness of the hour, re-echo, "It is gold, it is gold."

about 65 to 75 per cent of the gold. Formerly this was all that could be saved; but now the sulphurets, in which the waste gold went off, are saved in a large building called the chlorination-works. The process is quite complicated, and now 95 per cent of the gold is saved from the ore.

Mr. Schaeffle being upon sort o' fraternal terms with the superintendent, we were allowed to descend into the mine. A large bucket of boiler iron (that is what we should call it, but in miner parlance it is called a skep) is operated by a hoisting-engine and a wire rope that runs over pulleys in a tower fully 60 feet in height. The superintendent had gotten this drop on us, and ordered Mr. Wilder and myself into the skep, while he and Mr. Schaeffle clung to the rope and stood on the edge of the skep. We were provided with candles; but the miners have little lamps on the front of their hats. This allows a free use of the hands. The signal is given—a tap of a gong—and down we go—down, down. The shaft is 1000 feet deep, and



we stop at the 900-foot station. Here we crawled out of our skep and explored the underground world. Mr. S. and the superintendent kept up a running talk about shutes, stopes, veins, high grade and low grade, etc. The stretch of landscape is not very extensive in a mine. Tunnels run in various directions, and at different elevations from the main shaft; and here we found the miners at work with the aforesaid lamps on their hats. The drills were churning away with rapidity, operated by compressed air. After working the drill it escaped and kept a supply of fresh air in the

regulated cellar. Instead of the potato-barrels and apple-bins they have a good substitute in now and then a few boxes of dynamite; and I wish to say to my Prohibition brethren, that I here found a place where prohibition is a success. The owners of the mine prohibit smoking, and the use of any spirituous liquors. They think dynamite is quite elevating enough for all intents and purposes.

We returned to daylight via the wire-rope-and-skep route, and with Bro. Schaeffle we returned to Murphy. This town also has a hole of its own in the ground, made by nature;



CALIFORNIA REDWOODS.

mine. Some of the side tunnels were several hundred feet in the rock; and as we explored, the little cars of ore would squeeze past us. The men seemed to be perfectly contented, and quiet. I don't know whether they sing much in a gold-mine or not; but probably not, as their music has not much chance to expand. Bro. Wilder and I supposed we could see gold sticking out in chunks; but we saw not a sign of it. It is so fine in this rock that a magnifying-glass will scarcely reveal it.

Although we are down 900 feet, we have the same feeling that we experience in a well-

or, in other words, Calaveras Cave is considered a wonder. Mr. S. led us into this, which is 300 feet deep. The chambers were not large; but the stalactites and various formations were interesting. In the chrysanthemum-room we found beautiful white formations, in shape resembling the above flower. A thin curtain-shaped stalactite, when its various folds were struck with a stick, gave forth musical sounds, and a skillful operator could ring out a melody. This was called the "organ." This hole in the ground is also, in a certain sense, a gold-mine, for the owner of it exacts tribute from visitors,

and his income is profitable, for thousands of people visit the cave.

Fifteen miles from Murphy are the wonderful sequoias, or big trees. Our route was up the San Antonio, a fine trout-stream; and whenever we saw a deep pool in the tangle of rocks and trees, we had in mind our aforetime fellow-traveler Pryal, and his passion for the hook and line, and—bites.

Travelers are many times disappointed over some famous feature of nature, from the fact that their imagination has pictured the feature away beyond the reality; but in our case the giant sequoias were fully up to expectations; and the longer we lingered in the grove, the more majestic they appeared.

There are 90 trees in this grove, and they bear the names of generals and other noted men of the world. Ten of these trees are each over 30 feet in diameter, and over 325 feet in height. A few of these monarchs of the forest, having served their day and generation, have succumbed to the wear and tear of time and tempest, and are now prone upon the ground; and, though fallen, they are objects of wonder.

We spent one night camped under their tall forms; and when we departed we felt as though we had seen another of the grand features in nature, and a feature especially characteristic of this wonderful country.

We returned to Murphy again, and sojourned several days under the protecting care of Bro. Schaeffle. I found that Calaveras Co., though not so prolific in schoolma'ams as Humboldt Co., was nevertheless well supplied. One would suppose that my traveling companion had lost his entire heart in Humboldt Co., and that it would be many years before it would be entirely healed; but he had wonderful recuperative powers; and here we were, barely two weeks from those dashing Humboldt damsels, and other fair schoolma'ams were attracting his undivided attention. It was the wielder of the birch in the town of Angel that threatened to wreck us this time. The name "Angel," in contrast to Humboldt, as a prefix to schoolma'am, does really appeal to the imagination; and when Humboldt can so easily be construed into humbug, I could hardly blame my partner for his preference. I tried to show my friend the error of his ways, and our argument ran upon the qualities that constitute a terrestrial angel, with the following result:

"An angel, Bro. Wilder, of earthly frame, is fair,

Sylph-like, with flowing golden hair.

An angel! how ridiculous it sounds

Applied to schoolma'ams of quite two hundred pounds."

"Not so," quoth Bro. Wilder, with a little bit of ire;

"A red-haired girl I never did admire;

But a black-eyed schoolma'am, worthy to be won,

Is every whit an angel, e'en if she weighs a ton."

This condition of mind was a danger-signal not to be slighted. The ponies were harnessed, and we traveled rapidly out of Calaveras Co.; and that night, many miles away in Tuolumne Co., we camped in the shadow of the Golden-nugget apiary.

### HOW THE MATING OF QUEENS CAN BE CONTROLLED.

QUEENS, AS A RULE, NOT MATED AT A DISTANCE FROM THE APIARY; AN INTERESTING EXPERIMENT.

*By James Wood.*

If this question is to be construed so as to apply to a certain individual drone, I answer no. If, as I understand it, we wish the queens mated to drones from a single colony, I answer yes. I know very well that I am stating what is not generally believed; but I am going to give you the facts just as I have observed them the past four seasons.

Let me first say that I am located at least three miles from any bees except my own. I have practically given up breeding five-banded queens; therefore I feel more free to give these facts than heretofore, as I did not wish to use the reading-columns to draw attention to what I had to sell.

In the spring of 1892 I purchased my first five-banded queen. I at once introduced her to a full colony, and began to rear queens, all of which mated with the three-banded drones, as no others were yet hatched. I tested a great many of these queens. They wintered well, and proved great workers; but now to the point I wish to prove. Their progeny showed nothing but bright three-banded bees. Not one queen in a dozen would show any five-banded bees; and what did, there was less than one per cent. Well, this mother-queen (my first five-bander) was given several frames of drone comb, and in the mean time I purchased another five-banded breeding-queen, and bred all my queens from her the remainder of the season. As soon as the drones began to fly from queen No. 1 I placed the drone-traps on every hive in my yard except this one. I now had drones in but one colony, that could fly. Now, nearly every queen that I raised after the traps were put on produced from 25 to 50 per cent five-banded bees, and a few 95 to 100 per cent.

"But," says some one, "this proves nothing definite, as you used another queen to rear your queens that produced the five-banded workers."

Let us pass by 1893 and '94, which I might mention as seasons of experimenting, and come to 1895. I now have, at the beginning of the



season, drones from several three-banded colonies, and no others. I raise about 15 queens from my five-banded stock, and again only three-banded workers appear from their progeny, as in 1892. Later I trapped off the drones and allow only the golden drones to fly from a single colony as in 1892; and out of over sixty queens bred from the same mother there are only two that do not produce a large per cent of five-banded bees — a much larger per cent than in 1892. The two remaining queens produce some black bees, but mostly three-banded.

There are about a dozen colonies of black bees in very large box hives about six miles from here, and there is a good colony of drones in each one — that is, if the amount could be counted as a colony, and undoubtedly a thousand drones to my one.

I mention this to show you that queens do not mate to any great extent five or six miles away. There were a few colonies of black bees within a mile of me ten years ago, when I first began rearing queens. I had more trouble with them than I do with this horde of drones now, six miles away, although at that time I had a plenty of drones in nearly 40 hives. I might give many more facts that I have observed along this line, but I think I have shown that queens may be mated with selected drones from any desired colony, provided you are located far enough away from other bee-keepers. I could not give these facts had it not been for the five-banded bees. I will give them credit for giving new light on this subject, if nothing more.

North Prescott, Mass., Aug. 1.

[I have obtained permission to use a portion of a private letter accompanying this, that confirms, among many other letters that I am not at liberty to use, my position on the five-banded queens. Here it is.—ED.]

#### THE REARING OF FIVE-BANDERS DISCONTINUED, AND WHY.

I have given up breeding the golden queens to any extent. You may be surprised, after the letter of recommendation I sent you from a customer in Canada. I have since called for reports from my customers who had purchased large numbers of me; also some of our best honey-producers. In substance, here is what one very successful honey-producer in Florida says:

"The 54 queens are beautiful, and produce handsomer bees than any others I have. I purchased several of Doolittle and Case last season. Your bees are very gentle, and, as a rule, good workers; but the two three-banded queens beat them all. The five-banders are bad about robbing, and I want no more of them. I dislike to say any thing against your bees, but I know you want the truth. D. R. KEYES.

"Wewahitchka, Fla."

You see, friend Root, that the two three-banded queens gave better satisfaction than any of

the other 52 golden queens. Last year your cry against them was, "They were cross." I never had any complaint on that score. I have always used gentle stock for breeding both drones and queens. This is the only complaint I have that they are robbers. But Mr. Keyes produces a great deal of extracted honey. I can see no difference in them in any respect in my locality, with the exception that they may not winter quite as well; but of this last I am not sure, as I have had some colonies winter splendidly. Mr. Keyes further said he would buy of me if I would breed three-banded bees. Customers in the North think they do not come out as strong in the spring as other bees. J. W.

#### HEDDON HIVE THE BEST SOLUTION OF THE HIVE QUESTION.

NO TROUBLE ABOUT THE QUEEN LAYING IN  
TWO HIVE-SECTIONS AT A TIME; WHY MC-  
INTYRE'S DOUBLE BROOD-CHAMBERS  
WERE NOT A SUCCESS.

By J. E. Hand.

Mr. Root:—I see by the July 15th number of GLEANINGS the hive discussion has taken a new departure. Heretofore, I believe, the discussion has been confined chiefly to the Langstroth frame; and the difference in opinion has been about the number of such frames to be used in a hive to give the best results; and as I firmly believe the size and shape of brood-frame has even more to do with our success or failure in the production of surplus honey than the number of frames used, this question is of more importance to the honey-producer than the other. I believe that much good will result from this interchanging of ideas so long as the right spirit prevails; and as long as these discussions are carried on by practical honey-producers whose opinions are unbiased by any pecuniary interests, and who are desirous only of arriving at the size and shape of frame best adapted to the successful production of surplus honey, there can be no danger in this direction; and while I believe it has been pretty fully demonstrated that the size of brood-chamber can be governed only by the location, time, and duration of the honey-flow, I am not so ready to admit that location has any bearing on this question of the shape of said brood-chamber.

I believe it is a fact generally acknowledged, that, other things being equal, a swarm of bees will store as much honey in one hive as in any other; but it is not so readily conceded that all hives are equally well adapted to the successful storage of *surplus* honey in the very best shape for market; and more especially is this true in the production of comb honey.

Friend Dayton struck the key-note of the whole business on page 550, July 15, when he said the measurements of the Gallup hive were found exceedingly unsuitable for the adoption of the standard section. I was compelled to

adopt the Langstroth measurements. Aye, there's the rub; and so long as the  $4\frac{1}{4}$  section continues to be the standard, just so long will the shape of the Langstroth form of hive make it so much better adapted to the successful use of this section than any square or deep frame hive. It will require better arguments than have yet been produced to induce very many practical honey-producers to change from the L. to any square-frame hive. On the contrary, I am firmly of the opinion that the tendency of the times is in the opposite direction. I believe about all the advocates of the square hive claim is that they winter better and build up faster in the spring. While this is doubtless true when run on the let-alone principle, as many so-called bee-keepers manage their bees, yet it is a demonstrated fact that, with proper care and management, the L. hive will generally have its working force ready for the harvest when it comes, and that is all that is necessary. Too large a swarm in early spring is not desirable, and never does as well when the harvest comes.

I believe the majority of bee-keepers, like friend Dayton, have found out that the L. hive form is best adapted to the use of the standard section; yet is there not room for more improvement in the same direction? or, in other words, is there not some system of management that will preserve the form of the L. hive for surplus, and yet give us more perfect control of our bees, and thereby enable us to secure something of a crop of surplus, even in poor seasons which seem to be so common with most of us? Has not this need been supplied by the advent of the horizontally divisible brood-chamber hive?

While there are locations so good that almost any kind of hive will give a fair crop of surplus, yet there are very many locations so poor that it is only by the very best system of management, and strictest attention to every detail connected with the business, that any thing like a decent crop of honey can be secured. In such a location as this it has been my lot to be placed as a honey-producer, and for several years as a specialist, depending on the production of honey for food and clothing for wife and the little ones, and therefore I must have a hive and system that will give me perfect control of my bees at all times—one that will give me all the white honey where I want it, and that is in the sections. I have never invented a hive, but have carefully tested every hive of any note that has come before the public for the past twenty years; and the divisible-brood-chamber hive is the only one that has ever given me perfect control of my bees. With this hive and clipped queens I am not only a bee-keeper, but am master of the situation, and can say to my bees, "Thus far shalt thou go, and no farther."

I will not take the space to explain the sys-

tem of management necessary to the successful operation of this hive, as it has been given to the public by Mr. Heddon and others, and is familiar to all careful readers of GLEANINGS. Of course, friend McIntyre or any one else would make a failure in trying to use this system with a frame 7 inches deep and 10 frames to the hive at that. The frame I use is  $4\frac{1}{4} \times 17$  inches inside; and any brood-case can be used as a wide-frame super by simply providing the frames. With this depth of frame and proper bee-spaces between the cases  $\frac{1}{4}$  inch, and top and bottom bars  $\frac{1}{8}$  inch, I have no trouble about the queens passing from one section to the other; and my bees will remove the honey from the lower case as soon as they are interchanged, every time.

Friend Root, you say that Dr. Miller, after experimenting with the shallow extracting-chambers, arrived at the same conclusions as friends McIntyre and Holley. I notice by your catalog the top-bars of your shallow frames are  $1\frac{1}{2}$  inches wide. Perhaps this had something to do with the doctor's failure with them.

I am not in any way interested in booming any hive or system, but have only tried to give to the readers of GLEANINGS the result of my experience along the line of hives; and if it will help some brother bee-keeper to increase his yields of surplus, and by so doing be the better able to provide for those dependent upon him for support, I shall be amply rewarded, and shall be only too happy to give something in return for the many helpful instructions I have received through the pages of GLEANINGS. It is useless to add that the honor of bringing this system to public notice belongs to James Heddon; and whether his patent is valid or not, I believe his rights will be respected by all honest bee-keepers.

Wakeman, O., July 20.

[The columns of GLEANINGS are open to fair and impartial testimony of this kind. The top-bars that Dr. Miller used were, I think,  $1\frac{1}{4}$  in. wide. Possibly this may account for the fact that queens did not breed properly in the two sections of the hive at the same time. What he had was extracting-supers and not brood-chambers.]

Since this came to hand we have received the following from O. R. Coe, quite an extensive bee-keeper in the Catskill Mountains.—ED.]

□ I have over 700 half-story hives, and do not propose to make or use any other style of hive than the divisible brood-chamber, but have not time now to tell why I like it better than any other hive.

Honey is a total failure up to this time. Bees are in a starving condition except as I feed them where there was not honey left over from wintering.

Windham, N. Y.

O. R. COE.

[Here is an article equally fair and unprejudiced, on the "other side."]



## THE DOUBLE BROOD-CHAMBER A FAILURE.

COSTS MUCH MORE THAN THE SINGLE BROOD-CHAMBER; WINTERS NO BETTER; THE REVERSING AND SHAKE-OUT FUNCTIONS.

By B. Taylor.

Dr. Miller, in *Stray Straws*, says:

B. Taylor, after inventing and using for many years the sectional brood-chamber, takes away one's breath by saying in *Review* that he prefers the single brood-chamber.

Now, doctor, if you should fail to recover your breath I shall not consider myself responsible for support of the widow, for you had no real excuse for losing your breath; for, while I have written approvingly of the divisible shallow brood-chamber as being very handy for doing many things that I practice in raising comb honey, such as contracting the brood-nest to hive prime swarms in, yet I have in none of my writings disparaged the larger full-brood chambers. At length I came to the time, as I have told in the June *Review*, when I had to choose between them; and I had to decide in favor of the larger full brood-chambers, upon the ground of utility alone, and for the following reasons. 1. The double brood-chambers cost more to make. I have always sold a single brood-chamber, such as I use, for \$1.25, and could not sell two sections of the shallow hive for any thing like that sum, for each section costs nearly as much to make as the larger full hive. It is true, there is a little less material in each section of the shallow hives; but in the two sections there is at least 40 per cent more material, and very nearly double the work. There are 20 instead of 10 frames; two hive-bodies instead of one, each costing in work and material nearly as much as a single full hive. Now, if I could have secured more honey, or with less work with the double brood-chambers, the increased cost of them could have been borne without loss; but after thirty years' trial I was *compelled* to know I could not. I at length became aware that I had over-estimated the double brood-chambers. Especially did this become manifest in the last few years of poor honey crops, when the struggle for bread and butter became greater. I have no apology to make for over-estimating the double brood-chambers. It was my baby, and I wanted it to be the handsomest and best baby in the whole world; but all parents know that our babies at length grow up to mature age, and their faults manifest themselves. We still love them; but if we are *wise* we see their weak points, and can not *love* their faults.

My double-brood-chamber baby grew up with more faults than my less showy, full-brood-chamber baby. I once believed the double brood-chamber wintered bees better than the full hive; but in the last few poor seasons for honey I have lost heavily in bees each spring, and the colonies in the double

hives fared as badly as those in other hives. I now *know* that it is the bees themselves that make wintering (when proper rules are observed) safe. I have long observed that some seasons bees wintered well in all styles of hives, and with seemingly careless management. I now believe I know the cause. Now, do not understand me as denying that the double brood-chamber has some good points; but its bad features overcome them. I have tested the "shake-out" function, the reversible function, about which much has been claimed; and I *know* that, for practical work, they are *arrant humbugs*.

In any hive we sometimes need to handle single frames, for various reasons, which I need not mention, as every bee-keeper understands them; and for many years, when this work had to be done in the double hives, I began the work with uncomfortable feelings. With the wire-end-frame handy hive all this work is begun with a kind of joyful feeling, for you can get into every part of the brood-chamber so easily, without any poking or prying, and with no tools but our unaided hands, that the work becomes a pastime indeed.

Readers of my writings will have noticed that I practice the same system with these hives that I do with the double brood-chamber. I still hive prime swarms on six to eight hundred inches of comb space. I contract by using two to four dummies made exactly the size and shape of the brood-combs; and in my hive I can do this work of contracting and enlarging twice as easily as with any other hive in existence. In the fall we use these hives double, but not as double brood-chambers. A queen-excluding honey-board is used between, for we have found that more bees can be raised on 1000 inches of comb, and have them ready for field work when clover blooms, than in a larger hive.

I have now fully answered the question of why I finally decided in favor of a single brood-chamber, and have done it in no hostile spirit toward any man or his interests, but have written every line with a sincere desire to benefit poor bee-keepers who are struggling to meet life's demands.

Forestville, Minn., July 16.

[I do not know that I have any comment to make, other than that I have not yet succeeded in making the shake-out feature work, nor have I seen any one do it with success.—Ed.]

## Our Crimson-Clover Symposium.

HOW TO RAISE IT AND HARVEST IT.

By Arthur T. Goldsborough.

As you ask for points on crimson clover, I write to say that I was one of the first men in the country to grow it. For three or four years people have driven by to see "Mr. Goldsbo-

rough's clover-fields," as the *Star* puts it. I do not believe it does to allow one's soil to lie all winter uncovered; so, consequently, stubbles of all kinds are planted to this clover—some to cut and cure, some for turning down, and some for seed. I always save my own seed in the haulm, having no thrasher or huller. If the cutting is done after the heads show no red, it quickly dries and is put into small cocks. A canvas is then spread, and in a very short time the seed (haulms) are flayed out. Unlike other grains, the slightest touch makes the haulms loosen. These are put into bags, and sown down the wind any time you wish. I sow it from Aug. 1 to Oct. 1, and rarely cover it, as it comes up easily after a rain. After digging early potatoes I rake off the vines with a harrow, and then sow clover seed, and do not cover. When sowing turnip seed I mix them with crimson-clover seed. For several years I sowed kale and clover together; but this is not wise, because in the spring the clover hides the kale too much.

I am now sowing clover among my tomato-plants, egg-plants, corn, beans, and melon-patch, and expect the first rain to start the seed. I am very much pleased with my last year's experiment with crimson clover, in connection with red clover and timothy. About the first of September I sowed crimson clover, red clover, and timothy at the same time, on some sugar-corn stubble. After taking off a splendid crop of crimson-clover hay, I forgot that other seeds had been sown with it, and was surprised to see a showy second growth putting forth about a fortnight later. The red clover has given me a good second crop, and will be allowed to remain over. Its habit of growth is much more beautiful than red clover, as it is taller, and stands up straighter, and the heads stand together more like wheat and timothy. It is so pleasing to the eye that I have a "woodman, spare that tree" feeling, and dislike to turn it down before blooming. Indeed, I am quite satisfied with its stubble, its roots, and its shade—that mysterious agent which furnishes the rich microbes of the soil to overcome the poor ones. A little strip of my field corn had a small piece of clover-stubble turned down about May 20, and any one could tell where the clover strip began and ended, almost on a dark night. If you do not sow it before last "plowing" of corn (good farmers don't murder their corn with a plow if they own a cultivator), get on a horse, ride down the rows, and sow it at any time before Sept. 1st. It won't need any covering unless we have a drouth. Besides, the expense of the seed won't break you in case of failure.

I rarely sow more than 5 pounds per acre. Another good way is to sow it on corn stubble, and spread fresh manure over it. If the horses have been fed on clover or timothy you will catch a good stand of these next spring.

I have not tried it with buckwheat, because the latter seems always to exhaust my lands. As a bee crop, nothing equals it. I have fifty colonies of bees, and they roar on it all the time. It is useless to sow in the spring. Two years ago I picked out some white heads, and now have this Italian clover in two colors.

In this day of low prices and close competition no farmer or horticulturist can afford to go without it. How many ignorant men in our land will purchase, this fall, worthless fertilizers to the extent of from about five to ten dollars an acre, when fifty cents' worth of clover seed would insure results five or ten times as great! In the rural districts of Maryland most of the mortgages are held by guano merchants; and if the agricultural papers did not receive their "ads" they would tell the farmers the truth about fertilizers, just as our experiment stations are doing. Try crimson clover, and see how much manure and fertilizer you need.

Wesley Heights, Washington, D. C.

---

### CRIMSON CLOVER ALIVE WITH BEES.

STOCK PREFER IT TO THE RED.

*By W. W. Kulp.*

I had a little correspondence with Dr. Miller, and I mentioned that we raised six acres of crimson clover. He wished I would write about it to some bee-journal.

My father owns a dairy-farm four miles south of where we live. On it was wheat-stubble in which the grass failed to catch. It was plowed during July, and harrowed; then in September, the first half, it was harrowed and rolled until it was in first-class condition—fine, and packed down. Remember that small seeds, especially if sown during warm weather, require fine earth, and it must be packed down, so moisture can continually come up from below. The crimson-clover seed was then sown with a seeder, and covered with a Breed weed-er. It came up nicely; and where it was very thick on the ground it grew much the best; but there was a good stand all over the field. It is river-bottom land, and in the adjoining field was a large colony, or many colonies, of grasshoppers. They moved on the clover, and ate off about 20 or more feet all along one side.

It was as green as spring grass all winter; but during cold spells in March it froze down, but sprang up quickly in April; and by May 25 it was a sea of crimson, beautiful to look upon.

Now for the bee part of it. I have an apiary of 40 colonies, now 55. About this time white clover began to bloom, and the bees began to store honey nicely. When fully out in bloom, and a few days more, my father went to cut about four acres of it. He found the whole field alive with bees—so many that one horse refused at first to go along it in the machine.



Now, no bees of any account are kept near it. After it was cut I found the flow stopped at my apiary, four miles away, and did not resume until after the middle of June, when red clover came out. White was very plentiful, but no honey. Now, I am not sure that the bees obtained the flow from the crimson clover, but there is no flow here between fruit and clover—no raspberries or wild flowers. We are not far north of Philadelphia, and the land is all farmed.

I took a bunch of dry hay of the crimson clover, and put it in the horse-rack when he was eating fresh-cut undried red clover and timothy. He left that and ate the dry crimson.

I raise Belgian hares, and I fed it to them green, and expect to feed to them one and a half tons dry before next May. They eat it every bit, and grow like weeds; but they eat ragweeds with a relish too.

I have sown one and a half acres of buckwheat and crimson clover with it; but we had only a few sprinkles of rain for a month, and the clover has not started. I intend to make it a regular rotation—buckwheat and clover right along, and expect to make the field rich. You see I read Terry. The Lord bless him and all the big and little Roots, including J. T. C.

Pottstown, Pa.

### CRIMSON CLOVER IN DELAWARE.

HOW IT IMPROVES THE SOIL; NO PLANT EQUALS IT AS A HONEY-PLANT; HONEY EXCELLENT.

*By T. F. Cooke.*

Crimson clover is probably more extensively and successfully grown in this locality (Delaware) than in any other in the U. S. at present. We consider it a most valuable plant, for on it greatly depends the production of fertility with which to grow the luscious fruits and fine vegetables for which this peninsula is noted. Its growing has been widely extended here during the past few years, and almost every farmer and fruit-grower has tried it, and knows its uses and value. Years before it was popular, the plant was known, tried, and pronounced a failure, probably because it did not show the marked characteristics of red clover, then almost the only member of the clover family in use here. Since then, slowly at first, and with a rush later, it was adopted, and its wonderful adaptability to our style of farming has become apparent. We were told that, beneath the working soil, the ground was full of plant-food; but a trial of deep plowing to bring it up invariably resulted in disaster. This plant, with its mass of roots in the surface soil, sends deep into the earth a number of roots after water and food, and from the air it draws nitrogen. More or less of these added elements of fertility are left in the soil, whether the crop is removed or plowed under; and the results seen in the

growth of succeeding crops are wonderful. That more fertility is gained by allowing the crop to fully mature, and be removed, than to plow under while green, is believed here generally, except, perhaps, where the land is intended for late potatoes, or is lacking in vegetable matter. On such land, plowing under the green crop when in full bloom is recommended, provided always that the quick improvement of the soil is of more value than the crop which might be removed and used for soiling, ensilage, cured hay, or seed production. The straw and chaff, after removal of seed, equals in value many of our cultivated grasses in feeding value.

The value of crimson clover begins as soon as the plants appear above ground, for then they begin to act as a shade and mulch, and to use and conserve fertility which would otherwise have been leached or blown away. They soon begin to draw nitrogen, for the nodules on the roots are found in great plenty, even in early December, or before. From that on until the busy bee extracts its store of sweets from the blossoms, the roots are lengthening out and searching for food three, four, and more feet under ground. We have been told that crimson clover has no tap-roots, and therefore can not reach down after phosphoric acid and potash; also that its life is too short to accomplish the work which red clover does. The facts are, that it does do it; and it has been proved by chemical analysis. We consider the root arrangement of crimson clover more advantageous, because the mass of roots are in the surface soil, where they are most needed. It can be used with or after almost every crop. None should be used on strawberries; for these, use it the year before the patch is set. It should be sown every year in blackberries and raspberries. It will stand the winter here if sown after sweet potatoes are dug. No plant we have here equals crimson clover as a honey-plant. It produces every year, and all the time while in bloom, some three or four weeks, according to the nature of the soil and climatic conditions. The growth of the blossom seems well adapted for honey-production, as it grows in length, and the bees work on the new growth until the blossom is full grown, two or three inches in length, in many instances. The principal trouble here in getting the honey seems to be in having the bees good and strong, and ready. It comes early; and if the bees are ready the sections fill very rapidly, and the honey is excellent.

This season white clover did not produce any honey here; and during crimson-clover bloom the weather was very unfavorable for bees to work; so our honey crop is a short one.

I can furnish you no photo of the plant; but it is a beautiful sight to see our broad level fields of it, when in full bloom. It is quite a curiosity to those who travel through here, and

are not acquainted with it. A few seeds sown in a box or pot, and cared for at almost any season, makes a pretty ornament.

Dover, Delaware, Aug. 5.

### ALFALFA AND CRIMSON CLOVER.

A SUCCESS IN NORTHERN ILLINOIS; CRIMSON CLOVER STANDS WINTER FREEZINGS AS WELL AS OTHER CLOVERS EXCEPT SWEET AND ALSIKE; AS GOOD A HONEY-PLANT AS ALSIKE.

*By M. M. Baldridge.*

I mail you to-day a small bunch of alfalfa, grown in this neighborhood, and taken from the crop to-day. If you will measure the plants I think you will find them to be from two feet to nearly three feet in length. These plants are from the second crop grown this season. The first crop was cut for hay about five weeks ago; since which time we have had and are still having a pretty severe drouth. The plants are now, as you will see, in full bloom, and some of the blossoms have gone to seed. I find more or less bees at work on the bloom, but by no means as many as upon the same-sized plat of sweet clover. This sample of alfalfa is taken from a plat planted at least ten years ago. The plat to-day is many times larger than when first planted. The plants each year have been permitted to mature one crop of seed, and to remain upon the ground where grown. This is not the proper way to do; still, the size of the plat has thereby been extended in every direction.

From what I have seen here for at least ten years, I am satisfied that alfalfa is as hardy and permanent in Northern Illinois as any known plant that grows here. On proper soil, alfalfa will do as well here as a farm crop as it will in Colorado, Arizona, Utah, or the Pacific States; the only difference being, that I can see, that we can not get as many crops in a season; still, we can secure three crops of hay or one crop of hay and one of seed. Any soil here that has a loose subsoil, as gravel, sand, or loam, will do for alfalfa, and there are thousands of acres of just such land in almost every county in Northern Illinois.

#### CRIMSON CLOVER.

I sowed a small plat to crimson clover Aug. 20, 1894. The ground was broken up and the seed raked in. The seed came up quickly, and the plants were about eight inches tall when winter set in. During the entire winter the plants remained green in color. The spring was exceedingly bad for the clover family; but the crimson stood the alternate freezings and thawings fully as well as any other clover except alsike and sweet. Some of the crimson plants died; still there were plenty left for a good stand. The plants grew to about one foot in height, and when in bloom the blossoms were very handsome, and much admired by all

who saw them. The plants were in bloom nearly a month; but I regret to state that I neglected to keep the date when the plants began and when they ceased to bloom. I permitted the blossoms to mature seed, which they did about the middle of June. It was my purpose to gather the seed, and with it seed down a larger plat; but a heavy storm of rain came on near the middle of July, and shattered the seed off. I then concluded to break up this plat and let the seed make another stand. On examination I found the seed had already germinated, and that it was unnecessary to disturb the soil. To-day the plants are about one inch high; but unless we get rain soon they may not survive much longer.

While this clover was in bloom the bees were very busy upon it. From what I have seen, I believe crimson clover is about as good a plant for honey as alsike, and that it will pay honey-producers to encourage their neighbors, who are farmers, to try a few acres of it. If they should succeed in growing a crop of hay or seed, in 1896, they will then need no further encouragement. It is my experience that farmers, as a class, are exceedingly slow in regard to trying new plants, and hence they need more or less encouragement; and yet this should surprise no one, for it is a well-known fact that not one farmer in 25, possibly 50, subscribes for or reads an agricultural periodical.

St. Charles, Ills., Aug. 5.

[Well done, friends. I hardly expected to get such favorable reports from localities so widely scattered. I am very glad indeed to hear friend Goldsborough come right out square about this matter of purchasing fertilizers indiscriminately, especially when so many of our experiment stations keep insisting that it does not pay; and I am exceedingly glad to find its value emphasized as a clover-plant. Friend Kulp's experiment of having the clover cut right in bloom, and a corresponding cessation of the honey-flow, would seem to be very conclusive. Surely it will not be a difficult matter to plant an apiary now, or very soon, within a range of a hundred acres of crimson clover. We all know what success it has met with in Delaware and vicinity. But our good friend Baldridge tells us that, away out in Illinois, it promises to succeed at least tolerably if it does not generally. And I am glad to hear such a report from alfalfa. Only yesterday a man called and asked me to go over to Chatham, ten miles away. He said there is a little patch of alfalfa over there that has given three good cuttings already this season. It is now Aug. 13. The seed was bought at our store. The soil around Chatham is heavy clay.]

In regard to sowing crimson clover during the latter part of August, I am afraid it will not be a very safe experiment in our locality, judging from last season. We should remember, however, that last winter—perhaps I should say, rather, last March and April—was the most severe on any kind of vegetation wintered over outdoors, of any season for years past; and may be that, with an average winter, crimson clover, with proper attention, will get through all right, even when sown in August and September. We need a lot of facts from experience, right along in this line. Who can furnish them?—A. I. R.]





## MARKETING HONEY.

*Question.*—Having some comb honey off the hives, and still more to take off, I wish to know how best to market it as to style, and where.

*Answer.*—This is a question that always arises in a bee-keeper's mind upon producing more honey than is needed to supply the wants of the family. This is also an important question; for a person may succeed in producing a good article of honey, and so put it up and force it upon the market that it will not bring the producer as much as a third or fourth class article would an apiarist who has an eye to this important item, "marketing honey." A good price for honey depends much upon the state in which it reaches market. Many will take their honey to market in bulk, piling the sections into a spring wagon in a haphazard way, and driving to the nearest town or city, offering it for sale. The grocer looks at it and soliloquizes: "This honey is in poor shape for me to sell; and if I put it in attractive shape it will cost me a cent a pound at least; also, this honey shows that the producer does not know the value of his production or he would have put it up in marketable shape; therefore, if I buy, it will be at a less figure than I would otherwise pay." So he offers three or four cents a pound less than he would expect to pay for the same quality of honey nicely crated and offered for sale by a person knowing what such honey was worth in the different markets.

In passing through the city of Syracuse, N. Y., a city of about 90,000 inhabitants at that time, I stepped into several places where I saw honey, and upon inquiry found that honey which was brought in without crating was bought for from 9 to 11 cents per pound, and sold at 15 to 17, while they paid from 13 to 15 cents for honey nicely crated of the same quality. Thus it will be seen that it pays largely to nicely crate our product: and if I had but 25 pounds of honey for sale I would crate it by all means, not only because it would pay *me*, but also because it would help other bee-keepers, and establish a more uniform price for honey throughout the country.

Well, after crating our honey and getting it in the most attractive shape possible, what shall we do with it? Much depends upon the amount of honey we have and upon our surroundings. If not more than from 100 to 500 pounds are raised, as a rule it can be disposed of in the nearest small towns to the best advantage. However, before we sell our product we should know what it is worth to us if we send it to some of the large cities. To ascertain this we should take some paper which

gives correct market reports, and I know of none which are ahead of GLEANINGS in this respect. Having such correct report, figure the expense of freight and commission out, and we have what it is worth at our nearest railroad station. If every one having honey to sell would adopt this plan, as well as crate it nicely, and then hold on to their product till they could get what it is really worth, we should soon find our smaller towns paying a uniform price, and we be taking a long stride toward making honey as staple an article of merchandise as it can ever become.

Now allow me to present a few thoughts regarding selling outright, concentrating our consignments, and also about scattering our product among a number of commission men. After arriving at the real value of my crop, as nearly as I can by the line of figuring spoken of above, I have always placed the selling price (at my nearest railroad station) at one cent per pound less than I thought it would bring when sold on commission. My reasons for so doing have been that, in case of selling outright, I have the money at my disposal, and can often invest it so as to make more than the penny a pound would amount to before a return was made from the commission man, because selling on commission sometimes proves to be a slow process of disposing of our product. In selling, I always demand cash at the railroad, when sent to a person I do not know; and if I spoke my mind freely I should say so *always*, as right wrongs no man. I much prefer to wait a few months on the commission men to waiting a few years, or never getting any pay, of a dishonest buyer.

Some years ago I sold my crop to a dealer in one of our large cities, and was foolish enough to let it go with the promise to pay upon its arrival; but "arrival" proved to mean five years. Thus I learned a lesson I have tried to profit by.

But shall we concentrate or cooperate in marketing our product, sending all honey going to one city to one commission house, as was recommended some years ago by some? My experience says no. Some years ago I shipped my whole crop, of about 9000 pounds, to such a selected commission dealer in New York. A little of the consignment was sold in October and November at full market quotations, and enough more during the winter, at a less figure, to make one-third of the shipment, while the remaining two-thirds was closed out in May at a price far below the cost of production. Had I and the hundreds of others who shipped honey that season to this party scattered it among twenty different parties and in different cities, nearly, if not all of it, would have been sold at the prices obtained in October and November. Thus a great gain would have been made to the producer, as it costs no more to ship to ten commission men than it does to one, unless we

except the extra accounts we have to keep. Since the above experience I have adopted the plan of shipping to as many different parties as the numbers 300 to 500 was contained in my production, according to the size of my crop. Some seem to think purchasers will get "scared" over seeing honey at every commission merchant's window, so hold off about buying, but I find this is fallacious. As well talk of a butter panic being caused in the same way; for all our commission men who handle country produce handle butter, yet the price of butter keeps steady, and people buy every day in spite of butter at every store. Since I adopted the plan of scattering my crop among several commission men in several cities, the prices obtained have been very satisfactory; returns in most cases have been made quickly, and several lots sold from one to two cents per pound above the market quotations.

To sum all up, I would say, put honey up in the most attractive shape possible, and sell for cash if you can obtain as much into a cent a pound as you think it will bring you when shipped on commission. If you can not thus sell it, ship on commission to reliable parties, sending 500 pounds and under to each party.



#### SCORCHED WAX; CAN IT BE USED AGAIN?

I have a cake of scorched wax, about 9 lbs., which I made about seven years ago. Is there any way I could take the scorched scent out of it so as to make up in brood foundation? The A B C, 1887 edition, doesn't seem to have any thing to say about the subject.

Rock Rift, N Y. JOHN S. CALLBREATH.

[Scorched wax, like scorched sugar or molasses, is practically ruined. You could mix the stuff in with a lot more of good wax, but it is doubtful whether it would be better than so much sand. The only thing I can suggest would be to put it into a solar wax-extractor. That which has not been entirely spoiled will separate, I think, under the action of the sun, and run down as fairly good wax. As all our wax is heated by hot water, itself heated by steam, we don't have scorched wax.—ED.]

#### IS IT A FACT THAT BEES SHOW A PREFERENCE FOR NEW OR OLD COMBS?

Dr. C. C. Miller:—I can answer two of your questions in Stray Straws in GLEANINGS, June 15. 1. A queen will lay in old combs every time before she will in new, as I have tried it often. Put old and new combs side by side, and the old ones will be filled with eggs first. 2. Do ducks eat bees? Yes, they have done it. One of my neighbors had ducks and bees. The bees watered at his trough, and the ducks caught many, for I saw them in the act.

Now, Dr. M., I will ask you a question: How long can you keep eggs out of the hive and have them hatch in another? One time I took a comb from a black colony containing eggs, and kept them out a little over four days, and then I gave the comb to a colony of Cyprians, and they reared black bees. C. K. DECKER.

Hanford, Cal., July 1.

Dr. Miller:—My observation leads me to believe that the queen prefers old combs to lay in, and that the bees likewise prefer the old combs for brood and storage. Combs turn dark by usage, as I think chiefly by fine varnish applied by the bees. All the interior and wood-work of the hive is also varnished in time.

Hopkinsville, Ky., June 26. D. F. SAVAGE.

[Dr. Miller replies:]

I hardly know how to account for the difference of opinion regarding the preference of bees for old or new combs. Some say bees prefer new combs both for brood-rearing and for storing honey, and yet it seems to me that in the many cases I have noticed there has been such a decided preference shown for the old comb that it would seem safe to consider it the universal rule. Will any one who feels sure that bees prefer new combs tell us what led him to this conclusion?

The duck question was raised in the *British Bee Journal*; and while there was testimony that in some cases ducks left bees unmolested, there was also very direct evidence that a duck would not scruple to lunch on bees.

As to the length of time eggs can be kept without spoiling, I have no very great knowledge. In the few trials that I made, I think eggs were destroyed after being kept out of the hive three days. But that doesn't prove that they might not be all right in other cases when kept out the same time or longer. It might be a step in advance if we could learn to keep worker eggs, for such eggs might then be sent by mail for the sake of getting new stock.

[Queens, I feel sure, show a preference for comb partly drawn out from the foundation; but I think I have noticed that, when it is fully drawn out, they will select the old combs. This seems to be more apparent toward the close of the season, when it is evident that cool nights will come on soon. A wasp-nest containing eggs and larvæ was laid on my table two weeks ago. Some of the larvæ were uncapped, and died in three days; but on uncapping the others at the end of ten days they made a respectful bow, and seemed very vigorous. To-day, Aug. 5, two days later, they are all dead. Probably bees are not so tough.—ED.]

#### IS IT A CASE OF UNUSUAL BALLING OF THE QUEEN?

I have been handling my bees on the clipped-queen plan for ten years past, but met with an experience to-day that surprised me. I introduced an Italian queen to a colony about five weeks ago; decapitated the old queen, because



her bees would sting as bad as hornets. To-day I took out the queen and clipped her; placed her on a leaf on the top of frames, and, as she went down, the bees got after her. I lifted out two or three frames at once, and found her balled on the bottom-board. I smoked the bees off, and she was stung to death. Is that unusual?

GEO. W. MARTIN.

Saltsburg, Pa., July 23.

[The case is not an uncommon one with cross bees, though usually there is time enough allowed to get the queen out of the ball before she is stung.—Ed.]



N. A. M., N. H.—Snow piled against the hives in winter is no detriment of itself, and affords some protection. The only trouble arises when it thaws and clogs up the entrance with ice. This trouble can largely be avoided by giving the hives a little slant forward in order to run the water from the entrance.

I. D., Mich.—The reason why bees fill in small slabs of comb between the frames is due, many times, to improper spacing, and to combs that are irregular. If combs are flat as a board, and spaced  $1\frac{1}{2}$  from center to center, and if the top-bars are  $1\frac{1}{2}$  inches wide, there will be but very little trouble. The building of similar pieces of comb in the sections can be avoided by the use of separators in connection with full sheets of foundation. In most cases, separators with starters are effective.

F. L. W., Ia.—We have not tried using chaff hives single-walled at the sides, and packed at the ends only; but reports from those who did try them were rather unfavorable, because the division-boards, even when 2 inches thick, do not seem to take the place of the thick double walls of the hives. Most colonies in our locality, even in chaff hives, are contracted down to leave a chaff division-board at one or both sides; and, of course, in the case of the smaller colonies, this gives additional protection; and, when large enough to fill the whole brood-nest, the division-boards are not needed.

B. F. M., Texas.—Bees, as a general rule, kill off drones immediately after the honey-flow. This is one of the economies of the hive; for the bees can not afford to support drones when swarming is over, and there is nothing before them but to save up their stores and go through winter. Useless consumers and non-producers must be killed off and got rid of. Of course, in queen-rearing you can prevent the loss of the drones by feeding the colony a little every day; and if you desire increase, divide, and feed each divided half a little feed to keep them going on in brood-rearing.

W. H. S., Va.—If your bees are clustering on the front of the hives, and refuse to work in the supers; and if, too, other colonies are gathering honey, the probabilities are they are preparing to swarm; or if the hive is improperly ventilated, and exposed to the hot sun during the middle of the day, give them plenty of super room, and, if necessary, raise the cover up a little and then drive them in with smoke. Of course, it is very essential that they have shade. If you can not give it to them any other way, use what is called a shade board—that is, two or three boards cleated at the ends so as to make a projecting top that will extend six or eight inches beyond the sides and ends of the hive. Of course, said shade-board should be elevated above the hive-cover an inch or so, to permit of a free circulation of air under it. In our catalog, page 4, is illustrated and described what we call the ventilated gable cover, combining to a great extent the ordinary cover and shade-board together.



Basswood is done for this season, and a good honey flow. We have had goldenrod, and other fall flowers promise well in sections where the low lands are.

A. G. ACKLIN.

St. Paul, Minn., July 17.

My best colony stored 119 lbs. from fruit-bloom and scarlet clover. This season white clover is almost a complete failure. You can't go wrong in sowing it for honey. It will come as near paying expense of cultivation for its nectar as any plant with which I am acquainted.

J. COLBY SMITH.

Willow Grove, Del., Aug. 5.

We are having the largest honey-flow I have ever seen. My 50 colonies of bees keep me busy waiting on them, while they are just rolling in it. But, strange to say, my neighbors' bees are doing almost nothing. I have the leather-colored Italians, while they have hybrids and golden Italians.

EDW. SMITH.

Carpenter, Ill., July 22.



#### BITTER WITH THE SWEET.

Bees are doing very little; no basswood whatever. Last year at this time I had 1500 lbs. of nice honey, and now not even 50 lbs.; but we have to take the bitter with the sweet.

STEPHEN ROESE.

Maiden Rock, Wis., July 22.



I WOULD call special attention to a good article by Doolittle in this issue, on marketing honey.

I WOULD also call attention to the valuable articles on crimson clover (see page 629). A few more have come in, but they were too late for this number, but will be inserted in our next, and perhaps in subsequent issues also. Any thing that looks toward increasing our annual honey crop by way of artificial pasturage in these times, that will supply our farm stock with a valuable forage, should be hailed with delight. Crimson clover is now one of our hopes, and should be encouraged by all means possible, if the testimony of reliable witnesses so far received is of any account.

#### THE TORONTO CONVENTION.

REMEMBER the date of the next meeting of the N. A. B. K. A., Sept. 4, 5, and 6, at Toronto. Reduced railway fare and hotel rates have been secured, and every thing so far looks favorable to a big and rousing meeting. Don't forget to ask for certificates for the one-third return fare, when purchasing tickets, whether you expect to use them or not on your return. The point is here: In order to secure reduced rates a certain number of certificates must be presented. If you do not secure one it may bar out all the rest from the one-third fare return, who have to travel ten times as far. This has already happened once or twice before, simply because a few, having only a short distance to travel, "did not want to bother with it."

The following is the program, from Secretary Hutchinson, so far as it is yet prepared:

The Bee-keepers' Union; its Past, Present, and Future. T. G. Newman, Chicago, Ill.

Amalgamation of the North American Bee-keepers' Association and the Bee-keepers' Union. Doctor C. C. Miller, Marengo, Ill.

Address of Welcome, etc. Hon. John Dryden, Minister of Agriculture, Toronto, Can.

A short address, Jas. Mills, M. A., L.L. D., President Ontario Agricultural College, Guelph, Canada.

Introducing Queens. S. T. Pettit, Belmont, Ont.

Bee-paralysis: What we know and should do about it. E. R. Root, Medina, Ohio.

Mistakes of Bee-papers and Bee-journals. Allen Pringle, Selby, Ont.

How Bee-keepers might receive more benefit from the Experiment Station. R. L. Taylor, Lapeer, Mich.

Who shall winter bees out of doors, who in the cellar? F. A. Gemmell, Stratford, Ont.

What is indicated by color in Italian bees? J. P. H. Brown, Augusta, Georgia.

The proper size of a Brood-nest, and how it shall be decided. Jas. Heddon, Dowagiac, Mich.

The surest and best way of raising a crop of Comb Honey. B. Taylor, Forestville, Minn.

Some things of interest to Bee-keepers. G. M. Doolittle, Bordino, N. Y.

Legislation for Bee-keepers. R. McKnight, Owen Sound, Ont.

How to Feed Bees properly. H. R. Boardman, East Townsend, Ohio.

#### BURR-COMBS AGAIN; HONEY-BOARDS VS. THICK-TOP BROOD-FRAMES.

In the last *Review* Mr. Hutchinson has an article entitled "Dispensing with Honey-boards." In speaking of brace and burr combs he says the remedy has been to use thick top-bars; that there is little difficulty in making the bars, but that there is difficulty in securing accurate spacing. His reason for so thinking is that bee-journals are still describing methods for that purpose. I can't see why this should prove that accurate spacing is impossible. If Bro. Hutchinson could work with us in our yard for a summer or two, with Hoffman frames, I think he would agree with me that there is no trouble in that line; neither is there any trouble from a few burr-combs. He says, "others say" that burr-combs are *lessened* only by the using of the thick bars. My own experience with such bars for five years, and almost constant observation, not only in our own yards, but in others, satisfies me perfectly that it is only in rare instances that they are built over the frames I have mentioned; and so rare have they been that almost anybody would say, who has had experience, there is no trouble worth speaking of. Mr. Hutchinson thinks it is a mistake to throw aside honey-boards, inasmuch as their cost is slight, and that they should not have been thrown aside, because "others say" there is trouble with burr-combs over thick top-bars. As to the matter of cost, he figures that at one cent a year for each board. This does not figure any thing either way, because it would be offset by the cost of the thick top-bars, and that should be thrown out of the account. The only objection he can think of with the honey-board (aside from the cost) is that it must be pried off when the brood-nest is open. And right you are, Bro. H.; but it is a very *big* objection, and especially so during the robbing season, when robbers are ready to pounce upon the hive, and chunks of honey are torn loose, and the drippings are smeared over the combs. The building of such is a waste of energy and a loss of wax and time on the part of the bees that should have been bestowed on the sections.

Mr. Hutchinson asks, again: "What does the practical honey-producer want to be opening his brood-nest for?" . . . "It is only in special cases that such treatment becomes necessary. A good bee-keeper can nearly always tell from outside appearances whether all is well inside of the hive." I will grant this is true to a certain extent, and once or twice I have written upon this phase of diagnosis; but too much a dependence upon this is too costly. At the risk of back-tracking a little I must confess that I can get a much more satisfactory idea of the brood-nest—one that may save dollars—after



seeing both surfaces of *one* brood-frame from the center of the hive. With the thick-top-bar sort of Hoffman self-spacing, it is a simple matter to get at the one frame. In the height of the honey season, when we used to use slat honey-boards, the outside indications, we will say, showed that the hive was not panning out as well as it might. In the old way I always had to rip off the super, tear away the honey with its burr and brace combs, and then crowd this way and that, one frame at a time, until I got room enough to pull out one all smeared with honey, to see whether the queen was laying regularly or laying at all. Now, when a frame is easily "getatable," as in the case of the self-spacers, the intelligent bee-keeper will judge almost unerringly the exact condition of the hive clear through the brood-nest, by seeing that one frame. For instance, if it is well filled with brood on both sides, and honey along the top-bar, it is pretty certain that every other frame, with perhaps the exception of the two outside ones, is equally well filled with brood. But if, on the other hand, the frame examined is sparingly filled, and no eggs, the indications are that there is very little brood in any of the frames, and that the queen is a poor one.

In conclusion, Mr. Hutchinson says that, in the use of non-burr-comb self-spacers, "we have destroyed that most convenient function of allowing frames a lateral movement." I just can't agree, anyhow. We get lateral movement in its perfection with self-spacers. Instead of fingering over each frame, four or five of the non-spacing sort, to get room to remove the one, we pry down in the center of the brood-nest, in the case of the self-spacers, and split it into horizontal halves, making a space of  $\frac{1}{4}$  in. extra. Now it is easy to remove any one frame, because there will be no bulged combs; and the whole set of frames of either half may be handled *en masse*; two, three, or four frames may be shoved back and forth *at one operation*. That is why it seems to me that lateral movement can be secured in its perfection, *only* by the self-spacing plan; but I grant there is no satisfactory lateral movement with the *standing* self-spacer; and what I have said implies the *hanging* kind. Now, if Bro. Hutchinson could work with us a couple of seasons—not that he lacks practical knowledge of the subject of bee-keeping—he would not depend on what "others say" on this question, but would conclude that the burr-comb nuisance, with self-spacing Hoffman frames, is *nil*, and that the very rare instances where they are built, and the very scarcity of them even then, is not worth considering at all. Say: can't you stop off from Toronto and let us show you several thousand Hoffman top-bars that have been in constant use four and five years, that do not show a trace of burr-combs, past or present? What you can see with your own eyes will be worth far more than what "others say" on this point.

#### A VISIT FROM THE EDITOR OF THE "AMERICAN BEE JOURNAL."

We all of us, big and little Roots, have had a most enjoyable visit from Mr. George W. York. From the very first a pleasant, and, I might say, a sort of kinship feeling, sprang up between us. I was attracted by his out-and-out spokenness, and gentle and Christianlike bearing; and the more I have come to know him, the more I esteem him—not as a rival, but as a co-worker. (Mutual-admiration society? Well, call it what you like, if I admire my friends and am not afraid to say so.)

Mr. York could stop but a very short time, so we endeavored to make the most of him while he was here. After showing him over the Home of the Honey-bees he made a remark something like this:

"Why, it seems to be ten times bigger in reality when I come to go through it than it appears on paper."

The point that pleased me was not the bigness of our establishment, but that we evidently had not tried to make the outside world think it is so much larger than it is in reality. Bro. Hutchinson, you remember, very kindly said of it, when here, that it was a good deal larger *inside* than outside.

Mr. York has had a good honey year, and one of his colonies has secured something over 100 lbs. of comb honey, a sample of which he brought. I believe it is about as fine-flavored honey as I ever tasted, alfalfa not excepted, and I thought so at the time I tasted it at his home last fall. It reminds one of a slight flavor of vanilla, and leaves a decidedly pleasant after-taste. In color it is a little darker than clover or basswood, and is somewhat of a greenish cast. He has asked me to name the source of it; but I never tasted any thing like it. Other bee-keepers, I am told, have been asked their opinion, and it seems they have been unable to tell what it is.

I suggest that the editor of the *American Bee Journal* take a ramble across the country, and follow those bees up. Let us have a name for that new honey. I might explain that his home where his bees are, is at Ravenswood, a suburb of Chicago, and his bees have access to the open country along the outskirts of the town.

Along in the afternoon we took a run through our apiary, went over the Hoffman frames, and manipulated that one Heddon hive; tried the shake-out function,\* peered into queen-rearing nuclei; in fact, we were so busily engaged among those pets that we actually forgot our supper, and Mrs. Root had to send Huber over after us.

The next morning Mr. York was to take the train at Sterling, twelve miles south of Medina.

\*It worked as it has always done for me—bees got all over the ground, up my pants legs; queen could not be found—in fact, it didn't work at all. I'd rather find queens in the good old way.

He wanted to go the night before and stop over at that point; but I wouldn't hear to that, for he must stay over with us. Our early trains not reaching there in time to catch his train, I drove down there with him; and such a delightful chat as we had in the early morning! We discussed bee-keepers, bee-papers, and bees in general; and you may be surprised when I tell you that we touched only incidentally upon the subject of amalgamation. Both of us were content to let the best judgment of the members of both societies settle the question.

THE DISCUSSION ABOUT THE BEST SIZE OF  
HIVES; SHALL IT BE CONTINUED IN  
GLEANINGS?

ALTHOUGH I have asked our readers once or twice whether the subject as above might not become wearisome, only one correspondent, so far as I know, has written a protest. All the rest have said, "Go on, Bro. Root; we are getting new light and new points." Bro. Hutchinson, in the *Review*, is frank enough to say that he is "really becoming tired of this discussion," because "so many of the correspondents are arguing at cross-purposes;" and that "it seems as though they were both right and wrong." Over against this, in the same issue, Mr. Hutchinson's right-hand man, the inimitable Hasty, says this:

The continued discussion of large and small hives in GLEANINGS seems likely to prove an eye-opener to us. We thought we had all the ways in which a journal could proceed, and we had not. The go-as-you-please way of every writer choosing his own subject, the question with symposium answers, snappy and right to the point, and the special number devoted to a special topic, all have been familiar to us this long time. In use, however, the second and third of these methods had got pretty well worn out, and yet very few questions in apiculture could be regarded as *settled*. It was left for GLEANINGS to take up a topic and stick to it, and squeeze it, and wring it, until the last drop of available juice had been wrung out. Why not, in the course of time, have each of the greater topics similarly treated? A joint agreement of the leading papers for this purpose wouldn't be amiss.

It seems to me Mr. Hasty pretty nearly hits the nail on the head. It was formerly supposed that a symposium in one number or two would just about settle a question; but as experience goes on, we have been shown many a time that our old conclusions were wrongly drawn; and it is only by *continued* discussion and digging up of the facts, or, as Mr. Hasty says, sticking to it and squeezing it, and wringing it until the last drop of available juice has been wrung out that we finally get at the truth. While I do not believe the question in GLEANINGS has been continued too long, perhaps some others feel like Bro. Hutchinson; and on the principle that a preacher who preaches too long a sermon spoils its good effect, it may be wise to draw the discussion to a close.

In the mean time, let us not, forget that we have had a few "eye-openers." Let us rehearse just a few of them. (1) More bee-keepers are using cubical hives than we supposed. (2) A larger number find the ten-frame hive preferable to the eight-frame than we had any idea of; and (3) it is evident that some bee-keepers are, or have been, getting along with too small a brood-nest; and especially is this true in the South and West. (4) Some like divisible brood-chambers that can be contracted or expanded at will, and think this is the best solution of the problem. (5) Others who have tried them do not find them to be an entire success, and have finally concluded there is nothing better than full-sized brood-frames — that is, a brood-nest with a single set of combs.

But perhaps the biggest eye-opener of all is the fact that (6) the eight-frame hive is not as generally accepted as about the right size for all bee-keepers as we have thought.

Incidentally, I might say right here that the real thing in my judgment that brought the eight-frame hive into prominence a few years ago was the idea of contraction. It was then thought advisable to reduce the brood-nest anywhere from the full size of hive (ten) down to four, five, or six frames. Later on, eight frames seemed to be as small as it was advisable to go. When bee-keepers began to use a two-frame dummy or division-board in the ten-frame hive generally, they reasoned this way: "What is the use of my having two frames extra space and a dummy if I do not need them, when I buy more hives? All the brethren use the eight-frame, and I might as well fall into line;" but nowadays there is very little contraction, and many are beginning to feel that *any contraction* is a mistake, because it encourages swarming, and incessant swarming means little or no honey.

Another eye-opener, and closely related to that preceding, is (7) that bee-keepers at large have been running too much toward small sizes in hives, and now the tide is turning slightly the other way. Just where it will land, nobody knows. Now, the question arises in view of this, "Is it wise to stop right here?" I confess I do not know, and ask for greater wisdom of our many readers.

The interest in any discussion, it may be well to remark, depends largely on whether one is interested in the thing discussed, or in this case whether he is thinking of changing his hive; whether his hives are all worn out, etc. If one already has a lot of good sound hives, no matter what they are, he will usually say, "I will stick to what I have," and we will say he is right; but at the same time he has a sort of feeling that, when the general discussion shows *something different* as being better than what he is already using, it may become tiresome. But this does not apply to friend Hutchinson, I am sure.





## FLORIDA TRAVELS.

At Kissimmee, when the train stopped we were welcomed by beautiful music from a brass band, played by a group of young ladies standing on the veranda of one of the fine hotels. I suppose everybody wonders at the queer name of this queer town, situated in one of the pleasantest parts of Florida. There are many stories in regard to its name. One is, that a very modest young miss inquired of a young gentleman whom she met, "Are you going to Kissimmee?" (meaning to inquire if he were going to the town in question). I did not learn what reply the young man gave; but when you come to hear the people speak of the town it sounds differently from what you would think to see it printed; for the accent is on the second syllable—the first light, and the last one very faint—K'sim-mee-y. I had been intending to make some stop at the very pretty city of Orlando; but I was getting along so slowly I felt the necessity of hurrying up. Mr. E. J. Baird is a dentist. I went into his pretty office, and sat down until he had time to inquire my wants; and it was worth a small farm to see the sudden change in his countenance when he found the editor of GLEANINGS in his reception-room. He was so glad to see me that it seemed almost cruel to tell him that I must take the next train, and that I could not even visit his pretty home.

I omitted to mention, in the proper place, that, while we were passing through Winter Garden and Oakland, we had a view of beautiful Apopka Lake. But we had another view from the other side, as we passed the town of East Apopka. I pushed on to Tavares. Well, when you see Tavares in print it will trouble you to pronounce it, almost as much as Kissimmee, Thonotosassee, and other similar names. Tavares is to be pronounced this way—Ta-var-eez, putting the whole accent on the second syllable, giving the A the sound it has in the word *air*. I presume these beautiful names—these strange weird names that we find all over in Florida—were given by the Seminole Indians, and theirs is a wonderful history; but we have not space to go over it here.

I reached Tavares after dark, and it was raining. I was a stranger in a strange land, and I had purposed walking over to Mt. Dora before bedtime. I was told that it was at the other (the east) end of the lake giving the town its name; but of course the late hour and the rain and the darkness forbade. I was a little homesick, and longed for the companionship of friends, such as I had been meeting all through Florida. I put up at the hotel; but the colored waiters, with their starched and spotless linen, and high prices for every thing, to match, did not make my homesickness any better. I hope our colored brethren will not think I have any prejudice against them—quite the contrary; but I am prejudiced against any man or woman, colored or white, who looks down upon humble, every-day working people like myself, from the lofty heights of their starched and polished style. If I have not told it right, you probably know what I mean, any way. I told the lofty clerk I would pay for supper and lodging, as I wished to walk over to Mount Dora and take breakfast there. At this he drew himself up still more loftily, smiled in a supercilious way, and said I could never reach there on foot, for it was *eight* miles. I presume

he looked down with disdain and pity on the man who would get up at daylight and walk that distance for the sake of—well, we will say for the sake of being somewhere *else*. It seemed to me the price he charged was quite ample for a whole day's board and lodging. Was I doing the right thing to travel that distance on the Sabbath, to be among friends? Wait a little. I did not see a single human being on that whole trip, because I made it before anybody else was up. After walking a couple of miles along the shores of the pretty lake I began to experience the same sort of second wind in walking, that I do in riding a bicycle; and I burst forth in songs of praise and thanksgiving to the great Maker of heaven and earth. I told him my wants and needs. I could talk out loud, for the most of the way I was right in the wilderness, with the lake on one side, and, of course, there was none to hear but the birds that cheered me with their morning songs. I prayed out loud for the friends I had left, and for the dear wife and children at home, and for the boys who were bearing their burdens while I was taking things so easy. I asked the dear Father the question whether it was wrong for me to get up thus early and enjoy his holy Sabbath. If answers come to us in peace and joy, and an ease of conscience, then the answer came to me that I was in the straight and narrow path. My example was not bad, because I chose that early hour when nobody could have been offended or misled by my example.

I reached a hotel, and had a half-hour's rest before breakfast was ready. The distance was only *six* miles, and not eight, come to get there. The breakfast was much more to my liking; and the ways and manners of the people were in such strong contrast with those at Tavares that I expressed my satisfaction and thanks before all the guests. This seemed to break the ice; and after bantering me a little I felt fully acquainted with the people—enough so to express a wish that I might meet them all at the church during the forenoon; and I was rejoiced to see the faces of some of them there later on. This nice breakfast that suited me so well, both in quality and the way it was served, was 25 cts. My supper only, mind you, the night before, was 75 cts., and lodging 75 cts. besides.

Our good friend C. H. Longstreet resides at Mount Dora. He and his wife and all his house are good old-fashioned Methodists. I talked with the people at the Sunday-school at the pretty little Methodist church, and to the Endeavor society in the evening, at the Congregational church. Near Mount Dora I passed the beautiful Chautauqua grounds of Florida. Friend Longstreet is a gardener as well as a bee-keeper, and he showed me some of his work in sub-irrigation in Florida. He dug out the ground in one corner of his garden to the depth of a foot or a foot and a half, and then lined this excavation with water-lime cement spread right out on the ground. The cement was built up around the sides of the basin, so it would hold six inches of water. Then the hole was filled with rich soil. A tile was put down in to carry the water to the bottom of the cement basin; and when the plants need water it is poured in till the ground is saturated. The experiment was a complete success; and it gave the little orange and lemon trees a start away beyond those not thus irrigated.

The matter of having numbered tin labels for hives has recently been mentioned in GLEANINGS. Friend Longstreet makes a very neat tin label of can-bottoms. One edge is turned up so as to keep the tin flat, and secure from being bent or bruised, and there is plenty of room to print a large plain figure so you can read it as far off as you can see the apiary. Perhaps I



might remark that tin cans, and, of course, can-bottoms, are a little more plentiful in Florida than in any other part of the world. And this lets out the secret that, notwithstanding the great abundance of fruits and vegetables in Florida during certain seasons, there is nevertheless a tremendous traffic and consumption of almost all sorts of canned stuff brought from the North. Florida does not seem to have caught hold of the canning business very much as yet. The Seminole Canning Establishment at Fort Myers is, if I am correct, the only institution of the kind I came across.

On Monday, Mr. Longstreet's son very kindly took me, with his horse and buggy, over to Sorrento, where I met Nellie Adams, whom I have mentioned before as having regained her health and hearing since her sojourn in the land of flowers. Her brother has one of the finest orange-orchards in the whole of Florida, perhaps. He has a large rotary pump operated by a steam-engine on the banks of one of the most beautiful lakes I ever saw. He had just got the plant in working order, and I felt sorry I could not make him a visit at the proper time, and see him operate.

All through Florida I was told that no good brick could be made in that State. In fact, they shipped their brick by rail and boat all the way from Georgia; but in the neighborhood of Sorrento I was agreeably surprised to find brick-kilns making nice-looking brick of Florida clay, to ship by rail anywhere wanted. I stopped to ask a number of questions of the men who worked in the brickyard, and who were taking down the bricks in the kiln. Finally some one asked where I was from. I mentioned Ohio; and at a venture I said my name was A. I. Root. One of them started in surprise, and asked if it were really possible that I was the "A B C" A. I. Root. I asked him what he knew about the A B C book. He said he had read it all through, and so had another of the men. (Friends again where I least expected to find them.) My good friend Nellie declared I must let up on my flying trip long enough to visit a greenhouse conducted by a couple of sisters—special friends of hers. I suppose I looked a good many interrogation-points, for she replied:

"Yes, Mr. Root, there is a *greenhouse* down here in Florida; and as it is something unique I want you to see it. And these two women also manage it almost entirely alone."

In view of this, of course I was ready for the trip. Down among the beautiful flowers and the beautiful plants—at least, such as had survived the terrible freezes—I found two nice-looking girls hard at work among the plants they loved. The Brooks sisters have done business enough, I believe, to issue a small catalog. I can not tell you of the many interesting plants, flowers, and fruits that I found there. Their greenhouse is not covered with glass, but with cotton sheeting rolled on rollers. But they had not seen our tomato-book, and their arrangements are rather imperfect, so it seemed to me. During the last freeze they had a terrible time in protecting their stuff, even in a covered house; and one reason was because the force of the wind played such havoc with their curtains, as I knew it would as soon as I saw it. If I am correct, they have one building, something like 200 feet long by 50 wide, with cotton sheeting to cover it entirely when frost threatens.

At Orange City Junction, where I was obliged to wait for the train, I came across a lot of Congregational ministers. They were on their way to a conference at New Smyrna. While we were waiting for the train several of us visited the famous Blue Springs, only a mile or two from the junction. This blue spring takes its name from the beautiful transparent waters, with a

little tinge of indigo—enough to make the waters look like the vault of heaven on a summer's day; and on the pebbly bottom of the blue waters issuing forth from the great spring we saw the same beautiful colors, rivaling those of the rainbow, and incrustated with pebbles, shells, logs, and limbs of trees, and wonderful submarine mosses and other vegetation, until the bottom looked like an enchanted land. Great fish a yard long or more swam leisurely past us, or remained motionless until the gentle strokes of the oar startled them from their noonday reverie. A dear brother—at least I learned to consider him so—handled the oars so as to leave the surface as smooth as possible, that A. I. Root might gaze unhindered, and take in the shining beauties of the crystal depths. There may be other good people in the world; but, oh how safe I do feel in the presence of such men! I am never nervous for fear they may let loose some startling oath, or that they may tell some impure story. What a wonderful privilege it is to be one among a company of men who are devoted, heart and soul, toward seeking first the kingdom of God, and his righteousness! We finally reached the end of the creek or river, and I gazed down into the crater where the azure waters boiled up. The country is so wild, rough, and broken in the vicinity, that almost the only access to the real head of the spring is by boat.

While riding on the train on my way back to New Smyrna, somebody touched me on the shoulder and said:

"Excuse me, sir; but did I not hear you say you are from Ohio?"

I assented. Then he asked me my name; and when I gave it I witnessed another sudden change in a stranger's countenance as he rose up and sat by my side, and told me his name was Donaldson, and that years ago he used to preach in Medina Co. He was another of the band of pastors on their way to the conference. During the afternoon, however, I slipped away from my pastoral friends; and before meeting them again I went through that little experience I have mentioned to you before at Lake Helen. While we exchanged mutual good-bys and God-bless-yous at New Smyrna, I gave them a brief account of my afternoon's experience. Said one of them (if I remember correctly it was Rev. W. S. Blaisdell, pastor of the Congregational church at Tavares, the very church I ran away from before anybody was up) something as follows:

"Brother Root, if these people all follow that little text you gave them ('thou hast loved righteousness, and hated iniquity'), all the powers of evil that the world contains can not lead them astray. Nay, farther: even the prince of darkness himself will be powerless to do you harm, no matter where you go, or what class of people you mingle in with. Only let that be the whole sentiment of your heart, the desire of your soul, to 'love righteousness and hate iniquity.'"

THE FLORIDA TRAVELS; BY A CALIFORNIAN.

Mr. A. I. Root:—I have just read "Florida Travels," and must say that it is wonderful how you take in every thing in your travels, at a glance, as correctly as you do. You have told nothing but the truth.

In February, 1884, we shipped 10 quarts of strawberries, in with another man's berries, and sold them through C. S. Durling, of Duane St., New York, for \$3.00 per quart. Our strawberry-vines began bearing in January, and continued until June. Ours were the Newnan Seedling. There are but few varieties that bear at all there. Our berries were on thin land; that did



the best. We had one acre that was very rich, but we got large vines and hardly any berries from it.

There is an orange-tree three miles south of Gainesville, on Alachua Lake, or Paine's Prairie, as it is called, that, in 1882, bore 18,600 oranges. A New England man bought them on the tree at 2 cents each. Now figure it up and see if it is not \$372.00. This tree is at Old Fort Harley; is 75 feet high, and 50 or 60 feet spread of limbs, and has had no cultivation or manure for years.

If you will look over GLEANINGS some years back you will find a communication from a man who had been in Florida a few months, condemning the Newnan strawberry. He said it was the poorest of poor berries. Evidently, he is not an A. I. Root kind of man.

Upper Lake, Cal. G. P. SHIRES.



#### EARLY POTATOES.

This season we have had an unusual opportunity for testing the comparative earliness and other qualities of the new as well as the old sorts of early potatoes, for the frost cut them all down to pretty nearly one dead level. Various kinds of potatoes had been brought into the market when one man showed me several bushels so much larger, nicer, cleaner, and handsomer than any thing else, that I uttered an exclamation of surprise. Finally I said:

"Why, my good friend, what kind of potatoes are these? and how did you manage to get them of such size since the frost?"

"Oh! they were just coming out of the ground at the time of the frost: and as there was only an eighth of an acre I covered them with straw. Besides, they are Burpee's Extra Early. I have had them two seasons, and I pronounce them the best early potato in the market."

"Well, these are really Burpee's Extra Early, are they? And you live on clay soil, as I do, so you did not have really the best kind of potato ground. How many did you get from that eighth of an acre?"

"Why, there were just about 25 bushels, large and small. Of course, I brought you the best ones."

After some little urging he said he thought he ought to have about 65 cts. a bushel for the lot. I paid him 70 cts., and felt happy besides, and I guess he did too. Now, friends, here is a yield of 200 bushels of potatoes per acre, of about the handsomest potatoes you ever saw in your life; in fact, they brought 5 cts. a bushel more than he asked, on account of their size and beauty. Is not that money enough to make a man well satisfied? Early as it is, I am going to save these potatoes for seed. I am not afraid to undertake it, because I did the same thing last year. And, by the way, I have a potato-story to tell you.

On the 28th of June, after turning under some Parker Earle strawberries where we had had quite a heavy picking, we planted some Early Ohio and Lee's Favorite potatoes. They had been kept in the cellar, and had not been cared for as they should have been, especially during the month of June. Some of the sprouts were six inches long. But I directed the boys to turn the boxes upside down, pour the pota-

atoes out as carefully as they could, then separate them, letting the roots and sprouts remain on the potatoes as much as possible. Each potato was carefully put into the ground, the sprouts held up and planted as we would plant cabbage-plants. Some one who saw me taking so much pains said the sprouts were no good, and that I had better pull them all off. I knew better, however, for I have for many years tried the same thing. A pretty fair rain fell almost immediately afterward. The white, sickly-looking sprouts gradually turned dark green, and they began to grow. I knew what to expect; but this time the experiment went away beyond my expectations. Let me explain that the strawberries were mulched with coarse stable manure. This manure had produced quite a growth of weeds. Another coating of good manure was put on top of the weeds; and when we plowed, a man had to help put the stuff all under. We have a good plow, however, and the boys made a good job of both the plowing and the marking. The marker, however, which is Darnell's furrower, came so near tearing up the trash underneath that we covered them by hand. Well, before July was out these potatoes were knee-high, almost covering the ground, and some of them in blossom, and about the handsomest stand of potatoes you ever saw. Not a bug has ever touched them, and there are very few punctures from the flea-beetle. Of course, there is no symptom of blight. When I told people that that big stand of potatoes had been in the ground less than 30 days I almost feared they would think I was becoming reckless in my yarns about high-pressure gardening. The little patch is really an astonishment to everybody. With so much manure they may be scabby; but from similar experiments made in late planting I hardly think they are.

Now, when you have some potatoes left, and they get great long sprouts on, and become in consequence so soft that almost anybody would pronounce them unfit for eating or any thing else, just remember this experiment and see what you can do along in the same line. It takes some work to put them out properly, I know; but it is only just a little more labor in planting: and less labor, in fact, through all after-cultivation, for the potatoes are ahead of the weeds; and, more than that, ahead of the bugs, and usually ahead of the blight.

#### SUB-IRRIGATION VS. TOMATO ROT.

"Some time" last fall Ernest decided that he wanted a water-closet in his bath-room. As the house stands a little higher than a part of the ground we use for market-gardening, I told him I would dispose of the sewage and water for him, without expense. Ordinary sewer-pipe, cemented at the joints, was used to carry the sewage down as far as the dividing-line between his ground and mine. Then it was turned into six-inch tiles. Each tile was one foot long, and they were buried from 20 inches to 2 feet below the surface of the ground, with the joints left a little loose. They ran down a pretty good incline under the pie-plant roots and other plants, for 30 or 40 feet, crossing diagonally three or four of my underdraining-tiles. Then we closed the opening, and covered the whole with earth. He felt uneasy about it, thinking the tiles might fill up, and back up so as to hinder the proper passing-away of the sewage. I told him the draining-tiles would carry away all the liquid portion, and that the roots of the plants would go down through the tiles, and dispose of all the rest. The apparatus has worked perfectly ever since, right through winter and summer. For some time, however, I did not observe the effect on plants



placed over the sewage-pipe, as I expected to. I began to think it was pretty low down. A week or two ago, however, along in July, I began to notice that the rows of tomatoes standing over the lower end of this sewage-pipe were of a bright thrifty green, and greatly overtopping the rest. The line of the sewage-pipe is now plainly discernible by the extra growth of pie-plant, tomato-plants, and every thing else over this tiling. Three or four days ago our good friend O. J. Terrell, of North Amherst, O., paid me a visit. After looking over the garden, and talking about the drouth, etc., he began examining my rows of tomatoes, trained after the experiment-station plan, on lath supported by a stout wire stretched between heavy posts. He gravely informed me that I should get hardly a good tomato from my whole plantation of several hundred large fine plants unless I gave them tremendous doses of water. And then he showed me a rotten spot on the blossom end of almost every tomato as it commenced to ripen.

"Mr. Root, that is the effect of a lack of moisture; and plenty of water is an effectual cure."

You may remember this has been suggested several times. I think the Ohio Experiment Station gave as their opinion that dry weather produces this kind of rot around the blossom end. But I rather maintained that the tomatoes had water enough. If we gave them any more on our rich grounds, they would all run to vines, etc. Finally a thought struck me:

"Oh! look here, friend Terrell. There is one thing I forgot to show you, and it is right pat to our discussion just at this minute."

Then I told him the story of Ernest's arrangement for his water-closet. Then we walked over to the spot where those great luxuriant hills stood. Lo and behold, they had grown so rank and heavy with their load of green tomatoes that they were pulling down the trellis. Two boys were called, and with stout stakes they pulled it up straight. Meanwhile friend Terrell was looking those lusty hills over, with the keen scrutiny of a scientist. He got down on his hands and knees; he crawled between the bushes; he peeked in here and there. Finally he stood up with a triumphant look on his face, and said:

"Bro. Root, you have seen the rotten-spotted tomatoes all over your plantation, where I pointed them out to you. You have even seen a bunch of pear tomatoes with a black rotten spot at the blossom end of each one on the cluster, and I told you your crop would be ruined if you did not pour on water, and lots of it. Now look here. I will give you a *dollar apiece*—mind you, a dollar—for every tomato with a rotten spot on it that you can find on these bushes that stand over or very near these five-inch tiles flooded with water, and something a little richer mixed in, say several times a day."

There, friends, you have got the fact. Ernest and I figured up that perhaps 12 or 15 gallons of water a day are flushed into those tiles. But it does not cost a cent. It is a perfect automatic arrangement. It is not only automatic in giving a tremendous crop of the handsomest tomatoes you ever saw in your life, but it is also automatic in disposing of all the sewage from the household. The whole thing stands right close by the street, and anybody can come and look at it who thinks I have exaggerated it. Because of the rot in tomatoes that has made such havoc, my loss for several seasons past has been because of a lack of water; and the remedy—at least one remedy—is sub-irrigation. And I have told you very plainly just exactly how to manage it. Somebody may suggest

that these small tiles will in time fill up, and will have to be taken up and cleaned out. Well, even if they do we can afford to do it; and very likely it will be as well or better to run the tiles a greater distance from the house, say a hundred feet or more. I do not know whether the roots of those rank-growing tomato-plants were down inside of those big tiles or not; but I rather suspect they are. In fact, that is where I planned to have them. The tiles are so large I think it will be a good while before they will be so filled up with roots and trash that the water can no longer get through them. Can any one suggest a cheaper way in the long run to manage a water-closet? And just contrast the beauty and simplicity of such an apparatus with that of an out-building with a pit or vault under it, full of the most disagreeable mixture that can well be thought of. Such things are a disgrace to the present age—at least, after one has the means to do better. And even if you have not the means, I would adopt the plan they have in Florida—the same one recommended by T. B. Terry—of having galvanized iron pails to be emptied on the garden whenever necessary. Do not, under any circumstances, have a pit or vault in the ground to endanger your wells and cisterns.

#### FORCING VEGETABLES UNDER GLASS.

The Cornell University Experiment Station (Ithaca, N. Y.), has just given us some exceedingly valuable bulletins on this subject. I speak of bulletins Nos. 95 and 96. If they are not furnished free on application, Prof. Bailey will surely tell you on what terms they can be had. No. 95 tells all about raising melons under glass. No. 96 discusses Grand Rapids and other kinds of lettuce; cress, egg-plant, and peas. There is also a chapter in regard to bees in greenhouses; another on the controlling of pests by fumigation. But the most valuable part is the arrangement of beds, glass, etc., for high-pressure gardening. I have never yet succeeded in growing nice celery in the winter in a greenhouse nor even in a cold-frame. As it is so easily wintered over until February any way, it is not worth while to grow it under glass, to be ready for use before March. During March, April, and May, people can always be found who will pay large prices for a nice article; and this bulletin tells how to make a success of it. The work is done by Profs. Bailey and Lodemann.

#### SWEET CLOVER—IS IT A NOXIOUS WEED?

In what is called the "Legal Department" of a recent issue of the *Ohio Farmer* I see in two separate places sweet clover mentioned among the class of "noxious weeds" that are under the ban of the laws of the State of Ohio. Now, I do not know how this came about, but there surely is a great blunder somewhere. First, you can not call any plant a noxious weed that is greedily devoured by horses and cattle when they can get at it. If sweet clover ever grows in pasture-lots, especially where the pasture is short, I have never yet met with such a case. It is true that stock, a good many times, need to be educated a little to like it; but our horses will now eat the dry brush after thrashing out the seed. Second, sweet clover has been for years past quoted regularly in the market, among other clovers. It is at present quoted by Nungesser & Co., 65 Pearl St., New York, at \$14.00 to \$16.00 per 100 lbs.; and there is a good steady demand for it at that price. Do the seeds of noxious weeds have a regular merchantable value? Perhaps I should be a little modest in speaking of the *third* reason why it should not be called a noxious weed. It is one of the recognized sources of some of the



finest honey that is produced in the world. In Utah it grows on the arid plain, and furnishes this beautiful honey by the carload, besides being next to alfalfa as a forage plant; and it also performs the important office of taking the alkali out of the "saleratus soil," as they call it there, so that the ground eventually becomes fitted for regular farm crops. Fourth, sweet clover sends its roots down about as deep as any clover known, into the very hardest soil, and brings up its fertility, and it is never heaved out by the frost. So far as I am informed, the frost has never yet been able to budge a root of it after it had made one season's growth. It dies, root and branch, as soon as it bears a crop of seed. I never heard of its being hard to eradicate.

#### OUR CRAIG AND OTHER POTATOES UP TO DATE.

The early potatoes mentioned on page 641 are now, Aug. 14, a perfect swamp of vines, and the ground is bursting open with potatoes already the size of hens' eggs. How is that for only about six weeks from the time of planting? Our Craig potatoes are also making a perfect swamp of dark-green foliage—no symptom of blight, and no trouble from the severe drouth, and not a bug on them anywhere. Prof. E. C. Green, of the Ohio Experiment Station, who has just been looking them over, says that, if nothing hinders, there will certainly be 300 or 400 bushels per acre. Of course, an early frost might cut short the yield somewhat. Mr. Green said he doubted whether there was a better field of two acres in the whole State of Ohio. I certainly have seen nothing like it in my travels. The whole two acres is now well mulched with coarse stable manure. This mulching holds the moisture from the rains we have been having, so they are not likely to suffer much, whether it rains or not; and I am rejoiced to know that the Craig Seedling is holding up bravely the reputation I gave it from the record of those ten hills last year. Those who have the Craigs had better take good care of them, and not be in a hurry to sell. Some sort of price will be fixed on them later.

#### CLOVER-MIDGE, OR SOMETHING ELSE; WHAT THEY LOOK LIKE, ETC.

In GLEANINGS for June 15 I noticed an editorial on the clover-midge and its work on the red clover, in which you said you had not as yet noticed that the midge had attacked the white or alsike clover, and said you would like to hear from your readers.

One year ago last spring I sowed an eleven-acre field to alsike clover. About four acres along the north side of the field was gravelly ground on which the clover died out during the drouth of last summer. The rest of the field had a nice stand of clover this spring; but, being short of corn ground, I concluded to plow up all but about three acres in one corner of the field, and put it in corn. I noticed, when I was plowing, that the clover-leaves were all full of holes, but I did not know at the time what caused it. I marked out the field both ways with a sled marker, and planted it with a hand-planter. I commenced to plant early in the morning, and I was surprised to find the marker-marks almost green with worms on that part of the field where there had been clover. There were no worms where there had been no clover. I counted 35 worms in one mark, within a space of 7 feet. They evidently had come to the top of the ground to feed on the clover, as they disappeared again in the ground when the sun got hot during the day.

A few days after I had planted the corn I pulled some pigeon-weed out of the clover on

that part of the field which I had not plowed, and I found the same kind of worms at work on the under side of the clover-leaves, although the leaves looked, as you said, as though they had been riddled with shot. I do not think that it has hurt it any for seed, as the heads seem to be fairly well filled. The worms were green in color, and all the way from  $\frac{1}{4}$  to  $\frac{3}{4}$  inch in length. Were they what you term the clover-midge?

C. C. WELSH.

Fostoria, Ohio, June 25.

[Friend W., the green worms you speak of are not what is known as clover-midge. Will our Ohio experiment station please straighten us out?—A. I. R.]

#### HOW TO PROPAGATE AND GROW BASSWOODS, ETC.

Can you tell me how to propagate and grow the basswood and Russian mulberry?

Gracy, Ky., July 31.

J. G. NANCE.

Basswood-seeds must be gathered when fully mature, and planted in good soil. Give them a mulch of some kind, say forest-tree-leaves. I suppose a mulch of any sort of grass would do as well. They need to be planted as soon as gathered, and left outdoors to freeze and thaw. The plants will come up in the spring about the time that weeds start. After this they can be handled about like any other nursery stock. As their natural home is the forest, however, in more or less shade, a shading of slatted shutters, or one made of lath or cotton cloth, seems to be a benefit. They can grow quite close together until they are a foot high, when they should be transplanted in rows wide enough apart to cultivate, and about six inches apart in the row. The distance apart depends, of course, on how long you let them stand. If you are going to plant a basswood-orchard, I would put the trees only 15 feet apart each way, cutting out half of them when they get large enough to make valuable timber. This thing should be kept in mind with all sorts of forest-trees: During our hot dry summers, shading and mulching are always of benefit; and, in fact, I have seen basswoods do better right in a thicket of briars than when standing out in a clean cultivated field. The briars and brambles must, of course, take the moisture and fertility from the ground; but they furnish dense shade and mulch. A mulching of forest-leaves is probably better than anything else you can give. I am not familiar with the cultivation of the mulberry; but I think likely the above would apply to the mulberry also, except that it is more of a cultivated tree than the basswood.

#### NIGHT-SOIL; HOW TO USE IT.

*Friend Root:*—Please inform me how I can best use the contents of privy-vaults instead of artificial fertilizer on celery grown after the Nivens method, and only a short distance from the house. I water with hose from tank a few feet above. It should probably be deodorized, and mixed, to make of even consistency. I have some 4000 plants on some 65 square rods.

Utica, Ill., July 1.

ALFRED MOTTAZ.

Friend M., your ideas are about right; but I do not believe your compost will be suitable for celery by the Nivens or any other method until it has had time to "ripen," as gardeners term it. This stuff is too rank for most vegetables unless composted with stable manure, muck, weeds, or something of the sort, and allowed to stand, say, six months or a year. Then it will produce very good results. But the value of it, I am inclined to think, has been somewhat

exaggerated. I would rather have a ton of good old stable manure than a like quantity of the best night-soil.

## Additional Editorial.

MR. HUTCHINSON, in the *Review*, pertinently asks the question, in reference to the subject of number-tags for hives, "Why is it necessary to have numbers at all?" Our colonies at the Home of the Honey-bees have never been numbered, because we did not consider it necessary. But a large number of practical bee-keepers, Dr. Miller among them, consider it almost indispensable. This is especially true when record-books are kept.

THE amalgamation of the N. A. B. K. A. with the B. K. U. is still somewhat an open question. A great majority, I fear, do not care very much one way or the other; but those who have expressed themselves at all, seem to be nearly all in its favor. So far as I can see, there is every argument in its favor, and little or nothing against it; and were it not for the General Manager of the Union, under whose leadership that organization has done so well, I should feel that the combining of the two societies was a virtually accomplished fact. I rather suspect the subject will be warmly discussed at the next meeting at Toronto.

SOME one has said that Dr. Miller ought to label his jokes; at all events, a writer in one of the Australian papers takes one a little seriously. Here is what he says:

Dr. Miller's Straws seemingly at times get very much astray. Here is a sample from GLEANINGS: "The *Australian Bee Bulletin* says, at the last of January, 'Swarming may now be said to be practically over.'—I should think so! That accounts for the big crops they get there. We could get big crops too if we would work the poor bees right through the winter."—The good doctor has evidently lost sight of the fact that, while January is the middle of winter in the northern hemisphere, it is the middle of summer here in Australia.

If the writer of the above could have seen the comical twinkle on the doctor's face, he would not have found it necessary to explain to him what was perfectly evident to the doctor. Now the joke is on [loud laughter] our Australian friend.

### THE GOOD AND BAD FIVE-BANDERS.

ONE good brother bee-keeper, a queen-breeder, writes that I am doing an injustice to a certain class of breeders when I say that the five-banders are not all bad, and that this stock from some breeders is all right; that, moreover, when I do not specifically name the breeders who furnish the nice five-banders, the good breeders are classed with the bad. Well. I grant there is something in this; but if I

specify the former, those not mentioned would "howl," and claim that they were not used right. Furthermore, I do not know all of the breeders who are conscientiously rearing five-banders that are strictly from Italian stock, and are all that is claimed for them; and I do not feel it my duty to keep still when I know that at least part of the five-banders that are reared, and perhaps a large percentage, are as cross as hybrids, and lacking in good wintering qualities. I do know that very little fault is found with leather-colored stock reared by any breeder. This stock does not win favor because of beauty, but because of real merit; and real merit is bound to win and bound to please in the end.



No more figwort seed wanted.

### HONEY-PACKAGES.

We have a good supply of honey-packages, listed in our catalog, ready for prompt shipment to those in need. If there is something in the line of honey-packages which you prefer, and we do not list, call our attention to it and we may be able to supply you. We have something new to offer which we will illustrate in our next issue.

### BUSHEL BOXES.

We are having a booming trade in bushel boxes, the orders averaging 300 to 500 a day. We are getting them off with reasonable promptness, considering the disadvantages under which we work with our wood-working building shut down for repairs. We expect to be running again full blast within a week or two at the outside, and can take care of all orders entrusted to us. We have a rip and a cut-off saw in our packing-room, to fall back on till our other machinery is in shape to run.

### CALIFORNIA SAGE HONEY.

Our car of extracted white-sage honey has just arrived as we go to press, and proves to be extra fine and white so far as we have examined it. This is the kind of honey which does not granulate, and for that reason it is very desirable to put up in glass packages for retail, because it remains liquid almost indefinitely. We offer it in cases of 2 cans, 120 lbs. to the case, at 8 cts. per lb. A single can at 8½ cts.; large lots at special prices quoted on application. Samples free to prospective customers; to others, 5 cts. each to pay for package and postage.

### THAT NEW EDITION OF THE ABC OF BEE CULTURE.

We are pleased to announce the long-looked-for and much-sought-after new edition, the 62d thousand, is finally completed. We have been a long while in getting it from the press, it is true; but besides the usual large revisions, we have added 48 extra pages of entirely new matter to an already large book, so that it now contains 472 pages, double column, like these, and still the price will not be increased. Besides the numerous changes and additions to the body of the work, to bring the matter clear up to the present state of the industry, we have greatly enlarged the biographical department, and new faces of prominent bee-keepers, who have made a success, are shown with appropriate sketches. The picture-gallery also comes in greatly expanded, with short description of each picture. These pictures are large half-tones illustrating apiaries, exhibits, and other phases of bee-keeping.

Although the work is supposed to cover every subject on which beginners desire information, we have collected together in one department of 32



pages, "Answers to Questions from Beginners." These are practical, every-day questions, representative in their character, that we have picked up for the last three or four years in our correspondence, and have subsequently been answered in the pages of GLEANINGS. It might almost seem superfluous to have them in a text-book at all, since many of the questions are answered in the body of the book. But experience has shown that certain specific cases arise in special localities requiring specific answers, and as these questions are repeatedly asked we feel that the answers will prove here, in permanent form, valuable to many others. To facilitate reference, questions of a kind are grouped together; for instance, questions concerning comb and extracted honey are by themselves, and in like manner those touching feeding and bee-pasturage, etc., and so on clear through.

The whole work, from fly-leaf to fly-leaf, has been all gone over and thoroughly revised, so we believe it is fully up to the times, is comprehensive, and as specific as it is possible to make any text-book. No expense has been spared in its preparation in the way of engravings, and certainly no beginner who is able to keep even one hive of bees can, for the small sum of \$1.25, afford to be without it. As formerly, this book can be had of all dealers in bee-supplies.

#### WHAT SHALL WE PLANT DURING THE LAST OF AUGUST?

Kidney wax beans will make green beans for table use and pickles, if the frost holds off, ordinarily. And speaking of string beans reminds me that our "Best of All" green-podded string bean is now ripening its crop of seeds. Our people around here pronounce it the most tender and luscious string or snap bean they ever came across; and if you do not use them all green they are a splendid shell bean for the table. This bean is certainly an acquisition. My attention was first called to it in Florida, and our crop is principally for the Florida trade. As it matures quickly, I think you can get green beans yet this fall from seed sown at once. Price, per pint, 10 cts.; quart, 15 cts.; peck, \$1.00; bushel, \$3.50; 5 bushels, \$15.00; 10 bushels, \$25.00. If wanted by mail, add the customary 15 cts. per quart for postage.

Eclipse beets will be just right for table use late in the fall. They will stand a considerable frost without injury.

If you can get cauliflower-plants, now is the best time in the year to set them out, in my opinion. We always get nice ones during the cool frosty weather of October and November—in fact, the nicest we get at any season of the year.

Celery will do if you have great big plants, and ground that is tremendously rich with stable manure.

Corey's Extra Early corn will surely make fodder, and may make roasting-ears.

During this month and next is the time to plant out winter onions and sets, white multipliers, and American Pearl. See prices on page 573 of our issue for July 15.

Alaska and American Wonder peas will often produce a good crop when planted the last of August.

All kinds of radishes flourish now as well as or better than at any other season. But the Chinese Rose Winter is considered the best for fall planting.

Now is just the time to get in spinach; but, like celery, it wants the very richest ground that you can fix up, to come to real perfection. Remember, this plant, with a little protection, can be left out of doors all winter; but it is a great deal finer if you have some glass or even cotton cloth to put over it during extreme weather.

Purple-top Globe turnips sown now will give you the very best table turnips, although they are likely to be injured by the frost before they get to be of very much size.

Asparagus and horseradish roots can be planted in August and September; but as a rule you had better wait until the last of next month, or even into October.

This is the great month for planting strawberries; and, thanks to our recent abundant rains, we are ready to supply almost any quantity unless it should be the Parker Earle and Edgar Queen. These are so late with their crop of fruit they have not yet made very many runners.

In regard to honey-plants, buckwheat put in now may escape the frost; better put in some crimson

clover with it, however, and then you will have two chances for a crop for the bees instead of one.

Alsike and White Dutch, peavine and mammoth clovers, sometimes make a stand sufficient to go through the winter; but it is risky business.

I do not know much about alfalfa; but I think that, in our locality, it is better to sow it during June. Rape can be sown for bees during this month or next, as it blossoms sometimes in four or five weeks after sowing. Borage will also make blossoms; but as it seems to have but little use except for honey, very little of it is sown nowadays. Seven-top turnip can also be sown any time this month or next; but this plant has also dropped out of use, as it is of but little value except for honey. A small patch of it for early greens in early spring, however, is a pretty good thing, and it is a splendid plant to turn under for enriching the ground.

#### AMERICAN PEARL ONION-SETS.

We are just now harvesting the finest crop of these we ever raised. As we put in a pretty heavy seeding, there are a good many small ones mixed in—some not larger than peas. These small ones are less likely to send up seed-stalks; and as they are sold by measure you get a greater number of onions for your money where the sets are small. Price, quart, 25 cts.; peck, \$1.50; bushel, \$5.00. The price of the large-sized sets, say an inch in diameter, or more, will be just half the above prices. These are just as good in every way, except that you will have to take more pains to break off the seed-stalks as fast as they appear next spring; and you will not get so many sets in a bushel if you use the large-sized sets. Now, and during the month of September, is the time to plant them. We have had the best success in wintering where they start and grow, and get well rooted in the fall. These onions have been described so often that I suppose almost every one is more or less acquainted with them by this time.

Winter rye, the well-known strain that we have been furnishing for so many years past, \$1.00 per bushel; 2 bushels, \$1.80, bags included.

#### KIND WORDS FROM OUR CUSTOMERS.

I am pleased with the hives, and we think the lawn-mower is perfection. GEO. W. RUSSELL.  
Ocoonita, Va., June 10.

I should like A. I. Root to see he is not fighting a battle against the swindlers single-handed. I am thankful that on this side of the globe we have men who are not afraid to speak the truth. I desire to thank him for the way in which he has shown up the electric gentlemen. M. EVANS.  
North Ipswich, Queensland, June 5.

#### CRANE SMOKER A DANDY.

I received my order, \$9,850, day before yesterday, and find every thing exactly right. This is the best hive I ever saw, and the thick top will stand our hot suns. The Crane smoker is a dandy. I am greatly pleased with these things, and extend you my sincere thanks. W. P. MOORE.  
Portland, Tenn., July 15.

#### A KIND WORD FROM ARKANSAS.

Bees and honey crop are good; fruit of all kinds never better; corn and cotton and potatoes, oats and hay, in fine condition. Come down this fall and I will give you a bear-hunt. ANTHONY OPP.  
Helena, Ark., June 29.

[Well, well! I have had invitations that were hard to resist, a good many times, but I do not know that I was ever before asked to go on a bear-hunt—and, come to think of it, from an old friend whose name has been on our subscription-list so long that it looks like one of the old landmarks; and that is what makes it specially hard to resist. Friend Opp, how fast can a bear run when it is right down mad? Could I take my wheel along? Is bear meat good to eat? Suppose you should take me off on a bear-hunt, and I should get hugged to death—what would become of Mrs. Root and the rest of them away back here in Medina? Now, then, you look out or you may get taken up. Thanks for the invitation, any way.—A. I. R.]



## Promptness is What Counts.

Honey-jars, Shipping-cases, and every thing that bee-keepers use. Root's Goods at Root's Prices, and the Best Shipping-point in the Country. Dealers in Honey and Beeswax. Catalog free.

WALTER S. POWDER,  
162 Massachusetts Ave., Indianapolis, Ind.



## IF YOU WANT BEES

That will just "roll" in the honey, try **Moore's Strain of Italians**, the result of 16 years' careful breeding.

Dr. H. B. Lung, Harrodsburg, Ky., says: "I have had the pleasure of seeing many fine strains of bees, yet I have never seen such industrious, energetic bees. I must express my admiration for your success as a bee-propagator."

Warranted queens, 80c each; 3 for \$2.00. Select warranted queens, \$1.00 each. Safe arrival and satisfaction guaranteed.

Those who have never dealt with me, I refer to A. I. Root, who has purchased of me 808 queens. Circular free.

J. P. MOORE, Morgan, Pendleton Co., Ky.

☞ In responding to this advertisement mention GLEANINGS

## BEGINNERS.

Beginners should have a copy of the Amateur Bee-keeper, a 70-page book by Prof. J. W. Rouse. Price 25 cents; if sent by mail, 28c. The little book and the Progressive Bee-keeper (a live progressive 28-page monthly journal) one year, 65c. Address any first-class dealer, or

LEAHY MFG. CO., HIGGINSVILLE, MO.

☞ In responding to this advertisement mention GLEANINGS

## MUTH'S HONEY-EXTRACTOR, SQUARE GLASS HONEY-JARS.

Bee-keepers' Supplies in general, etc., etc. Send for our new catalog. "Practical Hints" will be mailed for 10c in stamps. Apply to

CHAS. F. MUTH & SON, Cincinnati, O.

## Golden Queens From Texas.



My queens are bred for business, as well as for beauty and gentleness. Safe arrival and reasonable satisfaction guaranteed. Untested, 75c; warranted, \$1.00. Write for price list. 5-16ei

J. D. GIVENS, Lisbon, Texas. Box 3.

## "The Market Garden."

A Monthly Journal

For Market-Gardeners and Truckers.

50 Cents a Year. Sample Copy FREE.

THE MARKET GARDEN CO.,  
Minneapolis, Minn.

☞ In responding to this advertisement mention GLEANINGS

## TAKE NOTICE!

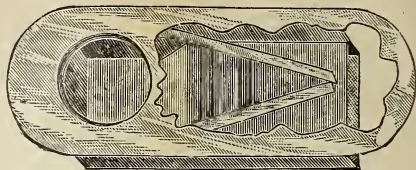
BEFORE placing your orders for SUPPLIES, write for prices on One-Piece Basswood Sections, Bee Hives, Shipping-Crates, Frames, Foundation, Smokers, etc. PAGE & LYON MFG. CO.,

8tfdb

New London, Wis

Please mention GLEANINGS. 21-8db

## Advantages of Bee-Escapes.



No sweat steals down the heated cheeks and aching back of the bee-keeper as the result of standing in the hot sun puffing, blowing, smoking, and brushing bees; no time is wasted in these disagreeable operations; and no stings received in resentment of such treatment: the honey is secured free from black or even the taint of smoke; the cappings are not injured by the gnawings of bees; and robbers stand no show whatever. If there are any broken burr-combs they are cleaned up by the bees inside the hive, before the honey is removed. **Leading Bee-keepers use the Porter Escape**, and say that without a trial it is impossible to realize the amount of vexatious, annoying, disagreeable work that it saves. The cost is only 20 cts each, or \$2.25 per doz. As in the past, this escape is manufactured by the Porters, but The A. I. Root Co. has secured control of the sale for this country. Order of your dealer or of

THE A. I. ROOT CO., Medina, Ohio.

DAUGHTERS OF IMPORTED MOTHER, 50 cents each; 3 for \$1.25; 6 for \$2.25; 12 for \$4.00. ALBERT HINES, Independence, Iowa, Box 532.

## GOLDEN QUEENS

Bred for business. Untested, 65 cents each; 6 for \$3.25. Tested, \$1.00 each. Fine breeders, \$2.00 each extra. Select straight 5-banded breeding-queens, \$4.00 each. To all new customers one **GOLDEN QUEEN** for 50 cts. Satisfaction and safe arrival guaranteed.

E. A. SEELEY, Bloomer, Ark.

P. O. Money Order office, Lavaca, Ark. 7-20

W. O. Victor, of Wharton, Tex., took

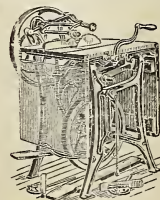
## 45,000 Lbs. of Honey in 1894.

He offers Italian Queens—good, old-style honey-queens—untested, first order, to any address, at 50c each. Also bees in any quantity; 450 colonies to draw from. Root's goods constantly in stock. Prices to suit the times. Fly near home, and save freight.

## World's Fair Medal

Awarded my **Foundation**. Send for **free samples**. Dealers, write for wholesale prices. Root's new **Polished Sections** and other goods at his prices. **Free Illustrated Price List** of every thing needed in the apiary. **M. H. Hunt.**

Bell Branch, Mich.



ONE MAN WITH THE UNION COMBINATION SAW

Can do the work of four men using hand tools, in Ripping, Cutting off, Mitering, Rabbing, Grooving, Gaining, Dadoing, Edging-up, Jointing Stuff, etc. Full Line of Foot and Hand Power Machinery. Sold on Trial. Catalog Free. 1-24ei

SENECA FALLS MFG. CO.,  
44 Water St., Seneca Falls, N.Y.

☞ In responding to this advertisement mention GLEANINGS

## «MONEY-MAKERS»

Are a strain of business Italians that winter in the cold North, and are ready for business, with a bushel of bees, when the flowers bloom. They are gentle and industrious. Queens, warranted pure, in June. Each, \$1.00; six, \$5.00; doz., \$9.00. Safe arrival and satisfaction guaranteed. Never had any disease.

Address E. F. QUIGLEY, UNIONVILLE, Mo.

☞ In responding to this advertisement mention GLEANINGS